



0 2007 1301704 0
California State Library

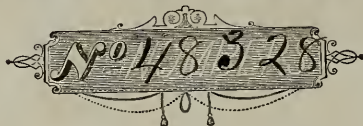
6305

615

7

CA 1921

CALIFORNIA
STATE LIBRARY.



Extract from the Political Code.

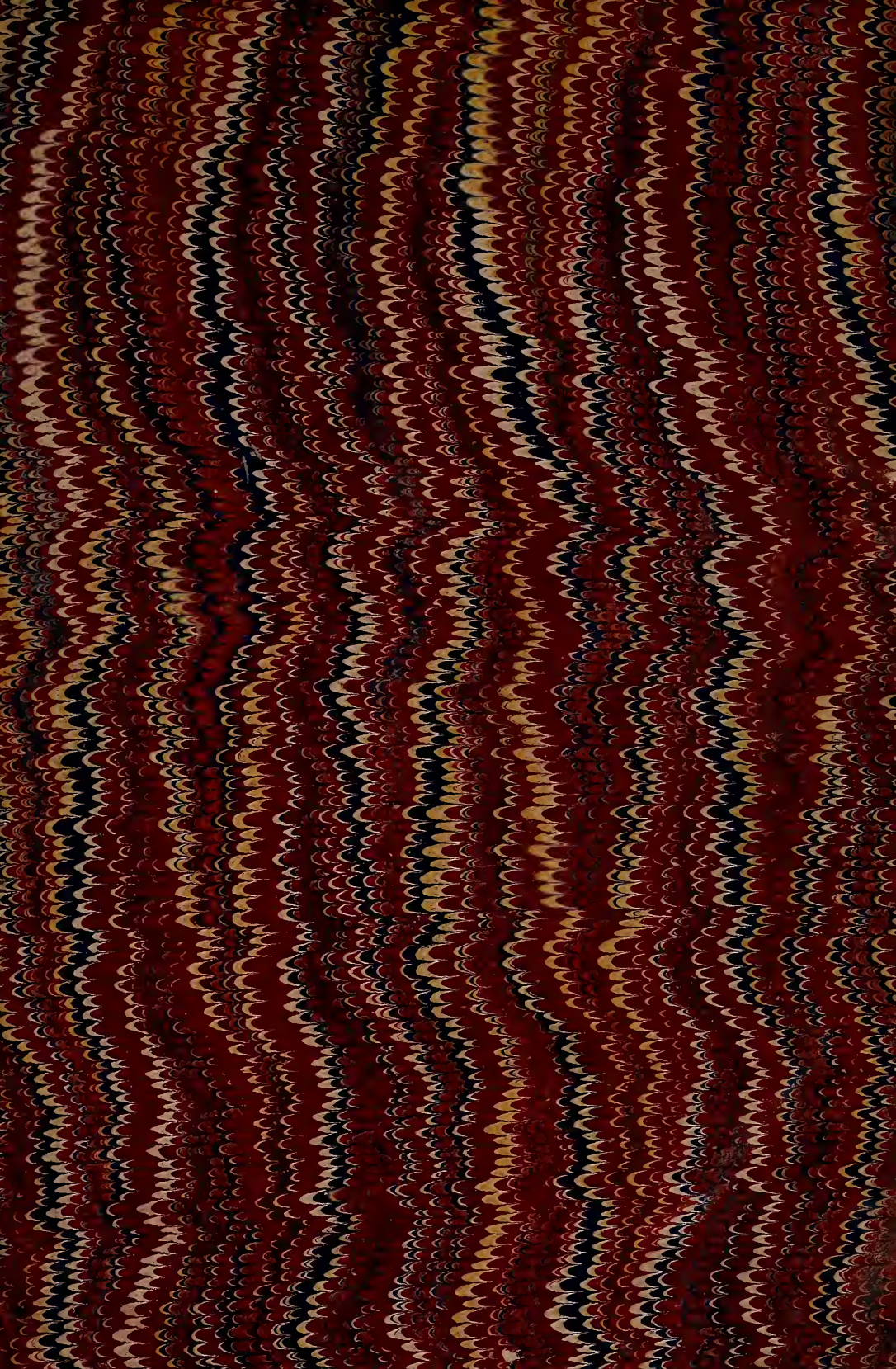
SECTION 2296. Books may be taken from the Library by the MEMBERS OF THE LEGISLATURE, DURING THE SESSIONS THEREOF, and by other State officers at any time.

SEC. 2298. The Controller, if notified by the Librarian that any officer has failed to return books taken by him within the time prescribed by the Rules, and after demand made, must not draw his warrant for the salary of such officer until the return is made, or three times the value of the books, or of any injuries thereto, has been paid to the Librarian.

SEC. 2299. Every person who injures or fails to return any book taken is liable to the Librarian in three times the value thereof.

No person shall take or detain from the General Library more than two volumes at any one time, or for a longer period than two weeks. BOOKS OF REFERENCE SHALL NOT BE TAKEN FROM THE LIBRARY AT ANY TIME.—[Extract from the Rules.

The foregoing Regulations will be strictly enforced.





SALIX CAPREA, VAR. PENDULA.

(Kilmarnock Weeping Willow.)

T H E

California Horticulturist

A N D

ANT 1898

FLORAL MAGAZINE.

VOLUME VII.—1876.

E. J. HOOPER, EDITOR.



PUBLISHED BY JOHN H. CARMANY & CO.

No. 409 WASHINGTON STREET, OPPOSITE THE POST-OFFICE,

SAN FRANCISCO, CAL.

TABLE OF CONTENTS.

A				PAGE
A Devil Fish.....				26
A Good Suggestion.....				176
A Japanese Specialty.....				22
A Poor Man's Breakfast.....				100
A Propagating Secret.....				119
A Queer Fish.....				145
Academy of Sciences.....				191
Achimenes.....				41
Alameda Nurseries.....				285
Alden Fruit-Drying House.....	100,			239
Alligator Skins.....				290
Almond Culture.....				268
Althoea Frutex.....				132
American Fruit in Europe.....	228,			314
American Pomological Society.....				110
Ancuba Japonica, The.....				104
Annals.....				133
Apples, Great Value of.....	267,			299
Artificial Coral for Rock-Work.....				140
Artificial Flowers, Poisonous.....				355
Artillery Plant.....				356
Audubon's Lily Rediscovered.....	186,			336
Australian Botanical Gardens at Mid-Summer.....				151
Annals in California, On the Proper Culture of.....				361
Apple, The Mexican.....				380
B				
Bait Fishing for Young Salmon.....				44
Baked Earth.....				132
Banana, How to Cultivate the.....	117, 196, 242,			311
Big Trees, Age of the.....	98,			323
Blackberries.....	227,			324
Botanic Garden, Plant and Seed Co., Prospectus of.....	61,			81
Botanical Research.....				292
Botanical Researches in the Rocky Mountains.....				345
Botanical Specimens, How to Prepare.....				251
Botany, A Short Lesson in.....				346
Bouquets, A new use of.....	16			
Buffalo Hunting.....				210
Black Bass, Capture of a.....				367
Berkeley, Visit to.....				376
Banana.....				385
C				
Cactus Family, Some of the.....				277
Caledonia Hatching House.....				27
California Canned Fruit.....				22
California Fruits.....	32,			215
California Grapes.....				96
California Grape Juice as Adapted to Wine-Making.....				178
California Hard Timber.....				82
California Productions.....				291
California, Some Wild Fruits of.....				133
California, The Drought in.....				301
California, Trees and Tree Culture in.....				31
Calochortus, On the Genus.....				40
Camp Life.....				205
Camping Out.....				76
Carnonfa Tree, The.....				43
Cherimoyer, The.....				137
Chestnut, Golden Variegated.....				336
China, Big Trees of.....				98
Cicero on Rural Life and Husbandry.....				74
Coffee in California.....				164
Colored Glass, Another Theory.....				164
Cooking Fish.....				144
Cotton Plant, A Wonderful Species of.....				228
Cork Trees.....				292
Cultivation of the Fig in Smyrna.....				115
Cutting Back Young Trees.....				260
Cutting and Preserving Flowers.....				197
Curious Trees.....				161
Curl in Peach Leaves, The.....				252
Cotton, Bamia—Liberian Coffee, etc.....				373
City Violets, (Poetry).....				387
Catalpa, as a Timber Tree.....				387
D				
Date Trees, The.....	237,			295
Desert Palm for Paper Making.....				152
Dew and Frost.....				123
Do Varieties Wear Out?.....				309
Drying Flowers to Retain Natural Colors.....				180
Dugong of Australia, The.....				273
Dwarf Service Berry.....				355
E				
Early Lettuce.....				162
Eastern Fish, History of the Introduction into California.....				337
English Angling, Reminiscences of.....	79,			106
English Sparrow, Don't Encourage the.....				96
Epergnes and Bouquets, Construction of.....				263
Eucalypti, Effects of.....				12
Eucalyptus Ficulifolia.....				122
Eucalyptus Tea.....				119
Evergreens from Seeds.....				248
Exotic Gardens Crystal Pavilion Concerts.....				255
Experimental Farm, University of California.....				29
Early Fruits.....				385
F				
Farewell, (Poetry).....				345
Fig Trees in Pensacola.....				265
Fish Culture.....				80
Fishing in China.....				306

	PAGE
Fish in the Pacific.....	206
Fish Spawn.....	81
Fish, The Taking of Food by.....	24
Fish and Fishing in the Great West.....	207
Fishing at Madeira.....	271
Fisherman's Funeral, The (Poetry).....	24
Flax and Castor Beans.....	348
Flies for Fishing in Different Months.....	174
Flora of Australia, Tasmania, and New Zealand.....	201, 265, 297
Flower Garden, The.....	39
Flower's Choice, The (Poetry).....	51
Flowers, Bulbous Rooted.....	71
Flowers for Food.....	185
Flowers, How to Use.....	85
Flower Gardens at Saucelito.....	221
Flowers, Success with.....	356
Flowers, Taste in the Cultivation of.....	70
Flowers, Practical Hints on.....	7
Fruits of Central Asia.....	249
Fruit Culture in England, Early.....	335
Fruit Culture in the Foot-hills.....	331
Fruit Trees, A Wash for.....	118
Fruit, Benefits of Much, as a Diet.....	328
Fruit, Ripeness and Preservation of.....	217
Fruit Trees, A new Pest to.....	68
Fruit Time, (Poetry).....	177
Fruit, When and How to Eat.....	99
Fruit and Vegetable Market, Report of.....	34
64, 93, 128, 158 193, 224, 256, 287, 319, 378.	350
Fuchsia, The History and Culture of the..	37
Fungi, Eatable and Uneatable.....	199
Flowers, Color and Fragrance of.....	364
Fishing at Estes Park, Colorado Territory,	369
Fruits, Flesh of.....	383
Flowers, Old-Fashioned.....	383
Filberts, Indigenous.....	385
Flowers, Hours of Blooming.....	386
C	
Garden of E. A. Upton.....	223
Gardening in the Tules.....	215
Germination from Old Seed.....	87
Gigantic Cabbage Rose.....	187
Gladiolus and Dahlias.....	170
Glazenwood Rose, Beauty of.....	163
Gov. Stanford's Private Garden and Conservatory.....	30, 156
Grafting-Wax, A Recipe for Making.....	336
Gravel Walks.....	290
Greenhouse Climber.....	290
Greenhouse, Notes from a.....	165, 229, 262, 325
Grubs, To Destroy.....	109
Gum Arabic Tree, The.....	247
H	
Have a Flower Garden.....	84
Hawthorn in California, The.....	308
Healthfulness of Asparagus.....	259
Heated Term and Vegetation, The.....	216
Hen Manure in the Garden.....	246
Hints to Young Anglers on Striking.....	240
Homestead, Now for the.....	113
Horse-Chestnuts in Paris, Gathering.....	19, 353
Horseradish.....	97
Horticultural Importations.....	114
Horticulture in Japan.....	260
Horticultural Publications Received, 59, 89	127, 189, 286, 317.

	PAGE
How Vines Beautify.....	99
Huasco Raisin of Chili, The.....	198
Hudeman's Villa in Napa Valley.....	235
Hunting and Fishing in Mendocino County	302
Hyacinth Leaves.....	345
Hatching, Lake Chabot.....	366

I

"I Go a Fishing," (Poetry).....	205
India Rubber Plants.....	354
Industrial Condition of the Slope.....	279
Insects, The Study of.....	137
Irrigation, Benefits of.....	324
Italian Gardens.....	316

J

Japan Lilies, The Culture of.....	10
Japan Soil and Manuring.....	139
Japanese Mushrooms.....	112
Japanese Persimmon, Description of the..	69
73, 90, 237, 281, 376.	
Jelly-Fishes, Something about.....	45
Jujube, The.....	101
Japanese Garden, Oddities of a.....	382
Japan Creeping Euonymus.....	386

K

Keeping Roses in Bloom.....	291
Kit Carson.....	343

L

Lakes and Water Plants.....	353
Landscape Gardening.....	238
Leaf Printing.....	20
Lemon Culture in Santa Clara.....	21

M

Maiden Hair Fern.....	336
Making the Wilderness "Blossom as the Rose".....	146
Manure for Heavy Soils.....	322
Manuring Apple Trees.....	146
Massachusetts Horticultural Society.....	318
Mate, or Paraguay Tea.....	19
Mechanics' Institute Fair.....	97
Megacarpea Polyandra.....	161
Meteorological Record, 36, 68, 100, 132, 164	196, 228, 260, 292, 324, 356.
Moles and their Worm-Stores.....	251
Mormon Lilies.....	231
Monster Sunfish.....	176
Mushroom Culture.....	182
My Garden Border.....	293

N

Nasty Greenhouses.....	249
Native American Grapes, A Few Notes on.	203
Natural Curiosities.....	99, 211, 227
Newfoundland Dogs.....	323
New Plants.....	53, 223

O

Occasional Change of Soil.....	259
Orange Culture.....	214, 384
Orange Tree, How to Grow From Seed, 122,	330
Oranges in Tuolumne County.....	23
Orchards.....	158
Orchards, Locations and Soils Best for....	250

	PAGE		PAGE
Oregon Currant, The.....	158	Soil for Gardens and Pot Plants.....	42
Oregon Myrtle Tree, The.....	182	Song of the Morning, (Poetry).....	277
Ornamentation of Gardens.....	185	Sowing Rye.....	292
Our Brook Trout.....	269	Spanish Walnut, The.....	111
Our Cabin Home, (Poetry).....	146	Spider, The Red.....	100
Our Floral Trade, Condition of.....	128	Sportsman's Club, The.....	108, 240
Our Frontispiece, 27, 56, 88, 126, 153, 187, 253, 281, 315, 348, 378.	220	Strawberry Growing in California.....	139
Ozone.....	322	Strawberries the Year Round.....	131
Orange Trees, Dwarf.....	383	Squirrels, Ground.....	323
P		Sulphur the Grape-Vines.....	183
Paintings of Dolly Varden and Brook Trout, Palms in Sacramento.....	50 307	Sun-Preserved Strawberries.....	292
Paris Exposition of 1878.....	349	Shade Trees, Concerning.....	357
Passiflora Edulis and Passiflora Granadilla, Passion Fruit.....	234 5	T	
Pavilion Garden, Mechanics' Fair.....	282	Temperature for Water-Plants.....	163
Peanuts and Peanut Oil.....	312	The Kum-Quat, Citrus Japonica.....	136
Pearl Fishing in Torres Straits.....	339, 371	The Old, Old Home, (Poetry).....	243
Pears, Where They Come From.....	280	The Old Garden, (Poetry).....	314
Peppermint, Cultivation of.....	118	The Paper Cactus.....	212
Phylloxera, Notes on the.....	15	Thinning Fruit.....	291
Pine-Apple, The.....	171	Tomato, Singular Property of the.....	56
Planting.....	11	Tomato, Use in England of the.....	324
Plants, Effect of Climate on.....	83	To Summer, (Poetry).....	212
Plants from Cuttings.....	100	To Tamalpais via Coleman's Dam.....	143
Plant Flowers.....	99	Trees, Amount of Water in.....	120
Plants, Natural Dispersion of.....	162	Tree Planting in the San Joaquin Valley..	87
Plants in Living or Sleeping Rooms.....	147	Tree and Shrub Planting in Gardens.....	148
Poison-Vine.....	322	Trees and Plants used by California In- dians.....	167
Poisonous Water Cress.....	162	Trees for Use and Ornament.....	248
Poisoning Squirrels.....	25	Tropical Fruits in Napa and Sonoma Coun- ties.....	97
Pomegranate, The.....	196	Trout, A New Spoon for.....	176
Pot Plants, Drainage for.....	54	Trout, Comparative Size of, in Europe and America.....	26
Potato-Growing.....	161	Trout Fishing in California, and the Best Localities.....	105, 304
Premiums of the Fair.....	316	Trouting-Fish Importations.....	141
Prickly Pear, Uses of the.....	243	Trout Fishing in Lake Pilarcitos.....	241
Profitable Gardening.....	163	U	
Pansies.....	363	Unhealthy Plants, The Remedy.....	169
Plane Trees, The Oriental.....	365	V	
Potato Blight, etc.....	373	Vanilla.....	184
Pansy and Phlox.....	374	Vegetable Garden, The.....	291
Publications Received.....	377	Verbena, Culture of the.....	103
Plants, Care of House.....	384	Vine, Dwarfing the.....	51
Perennial Plants.....	388	Vine-Growers, To.....	98
R		Violations of the Game Laws.....	109
Rain Tree, The.....	355	Vegetables, California.....	359
Redwood, The.....	177	W	
Red Spiders.....	196	Wash for Trees.....	290
Resurrection Flower, The.....	54	Water Cress Culture.....	150
Ripe Fruit, Transportation of.....	17	Water Spaniel, The Irish.....	211
Ripe Peaches, How to Pack.....	98	Water Cress Trade in Paris, The.....	252
Rose-Tree and Pansy, The (Poetry).....	81	Watering Plants.....	125, 356
Rosewater and Attar of Roses.....	381	What Salmon Feed On.....	49
S		Wilder, Address of Hon. M. P.....	319
Salmon, Different Kinds on our Coast.....	172	Wild Flowers.....	89
Salmon of Eel River, The.....	108	Window Gardening in San Francisco.....	6, 121
Salmon, Facts and Theories about.....	47, 270	Wilson Ranch, The, Los Angeles.....	327
San Lorenzo Fruit Farm, A.....	102	Woodward's Gardens.....	60, 191, 286
San Francisco's Brooklyn, A Visit to.....	134	Work for the Month, 27, 57, 91, 155, 188, 253.	217
Santa Barbara Olives.....	23	Worm Trade in England.....	336
Schnapper Fishing in Australia.....	274	Walnut Trees, Native.....	385
Shad.....	176		
Shaddock, The.....	157		
Shielding from Frost.....	163		
Snails, or Slugs.....	100		

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. VII.

SAN FRANCISCO, JANUARY, 1877.

No. 1.

PASSION FRUIT.

BY G. P. RIXFORD.

"The *Passifloraceæ*," says Dr. Lindley, "are the pride of South America and the West Indies, where the woods are filled with their species, which climb from tree to tree; bearing at one time flowers of striking beauty, and of so singular an appearance, that the zealous Catholics who first discovered them adapted to these inhabitants of the American wilderness their own Christian traditions; at other times, fruit tempting to the eye and refreshing to the palate."

Figuier's "Vegetable World" contains the following description: "The name is derived from a fancied resemblance to the cross, the emblem of our Saviour's crucifixion. In the five anthers, the Spanish monks saw His wounds; in the triple style, the three nails by which He was fixed to the cross; and in the column on which the ovary is raised, the pillar to which He was bound; while a number of filaments which spread from the cup within the flower were likened to the crown of thorns. In reality, the flower consists of a calyx and corolla, each of five

divisions, consolidated into a cup, from within the rim of which spread several rows of filamentous processes, regarded by some as barren stamens. From the sides of the cup, and within these, there proceeds one or more raised rings, notched or undivided, and in various degrees of development, and of the same nature as the filamental processes. In the centre of the flower stands a column, to the sides of which the fine stamens are united, but spreading freely beyond the apex, and bearing five oblong horizontal anthers. The axis of the column bears the ovary, a one-celled vase, with three parietal polyspermous placenta, having three club-shaped styles at its vertex. The plant produces a gourd-like fruit, containing many seeds, each having its own fleshy aril, usually enveloped in a subacid mucilage."

Probably every reader of the HORTICULTURIST is familiar with the common hardy Passion Vine, *Passiflora cerulea*, so often seen climbing veranda posts and trellises in both city and country. It is our purpose, however, at this time to call attention to the fact that at least one of the fruit-bearing varieties, *P. edulis*, has proved to be perfectly hardy

in this city. This variety is a native of Central America and the West Indies, and in general appearance is very similar to *P. cerulea*; the flower, however, is somewhat smaller. It is a vigorous grower, and is equally as deserving of cultivation for ornament as the one commonly grown, while possessing the additional advantage of producing regular crops of agreeable acid fruit. Trained up the south side of a building in the Western Addition in this city, vines that are less than two years old from the seed are now loaded with both ripe and green fruit, and until very recently carried an abundance of flowers also. The fruit when ripe is of a light purple color, about the size and somewhat the shape of an egg. Cutting through the thick rind the interior is found filled with many black seeds the size of small lentils, each enveloped in a yellowish deliciously acid pulp, with something of the orange flavor. This fruit is popular in Mexico, where it is known under the name of *granaditel Chino*, or little Chinese Pomegranate, the name being probably due to the fact that the seeds are enveloped in pulp in a manner similar to those of the Pomegranate. This species has been carried to Australia where it has become perfectly acclimatized, and now runs wild in the vicinity of Sydney, climbing over trees and fences as in its native tropical home. The Passion fruit, as it is called there, is very well known in the markets, and is often quoted in the retail market reports.

Of the two hundred species of the Passion Vine family, several produce edible fruits, some of which are superior to *P. edulis*, but are, we fear, too tender for this climate. The fruit of *P. quadrangularis* is six inches in diameter, of a greenish-yellow color, filled with pulp of a sweet acid flavor, very

grateful and cooling in a hot climate. Plants of this variety can now be seen in vigorous growth in one of the greenhouses at Woodward's Gardens, while several other species seem perfectly at home in the large conservatory of Miller, Sievers & Co. It may be well for those of an experimental turn to try some of the other fruit-bearing varieties in sheltered locations in the open air, and if success is achieved the cultivator will have the satisfaction of knowing that he has added another to the long list of California pomological treasures.

WINDOW GARDENING IN SAN FRANCISCO.

There are no plants which are looked upon with more interest, or attended to with more care in our ever rapidly improving and flourishing metropolis, than those which are cultivated in the rooms and bow-windows of dwelling-houses; and yet from our fair window-gardeners imagining that there is something very difficult in the management of these plants, or from not properly understanding what that should be they sometimes fail in accomplishing what their labor and anxiety most richly deserve. Now, there is in reality no great secret in the treatment of window plants. It must be a general principle in their cultivation, to give them all the light possible, even in our often very cloudy winters, by placing them close to the window, and during the summer months in a sheltered situation out of doors. They will do well, however, in a bow-window or other space similar to a conservatory, only with the windows in front. Although this situation out of doors is sometimes best in summer, yet in some places it may not be convenient, and in others it may be desirable to have them on the outside of the win-

dow, or on a balcony erected there for the purpose, where they will grow and flower under the eye, and perfume the air of the room when the window is opened in the few summer evenings here that this can be done in our cool city climate. In this case it is necessary to have some protection from the heat of the mid-day sun, which may be very much increased by the reflection of the sun on the back walls. High winds are very injurious to window plants, and should be guarded against, and for this reason windows on the ground or second floor, or on the west side of a house, are best adapted to their cultivation.

Plants in a natural state send their roots in every direction in search of moisture and food, and their tops in search of air. In this respect they differ from those grown in rooms or window compartments, confined to pots, and supplied with water by artificial means. The latter are as liable as the former to suffer from dryness in summer, having, however, fewer mouths to absorb the moisture evaporated from the leaves; and more liable to be injured by excess of wet in winter, owing to the drainage of the pots getting choked. It is impossible to say how often and how much water should be given, because this depends upon the plant itself, its state of health, and the season. As a general rule, however, they should never be watered until the soil at the surface of the pot will readily crumble between the finger and thumb, and when in this state, as much water should be given as the soil will receive; in other words, never water till the plants are a little dry, and then give plenty of it. Rain water is by far the best, if it can be conveniently caught from the house, and should always be used in preference to that obtained from springs. But Spring Valley water is

good enough for plants, however impure it may sometimes be for man in very long dry seasons, or rather, in our long dry summer season. In winter very little water is required, at least, not near so much as in summer, and it should always be cautiously given, because the air is more moist in general, and the light mostly not so intense, and therefore less demand is made upon the roots by the leaves.

When plants are inside the room, some contrivance is necessary to prevent the water from running through the pots and wetting the floor, and this is most simply done by placing the pot in a flat pan, which receives any superfluous water which is absorbed by the roots when the soil gets dry. Pouring the water into these pans instead of on the soil is not to be recommended. Watering over the leaves is of much importance to the health of window plants, exposed as they are to the dust, which forms a crust upon them, and prevents the action of the pores. This operation should be performed every two or three days in summer in the afternoon, when the sun does not shine on the plants.

Of late we observe some persons are advocating the non-use of holes at the bottom of the pots for drainage, contending that they do better without, as the roots of plants will grow through these openings, and so, when repotted, weaken the plants by being broken off, and oblige them to renew them. In this case they would require less water than otherwise.

PRACTICAL HINTS ON FLOWERS.

THE WALLFLOWER(*Cheiranthus Cheiri*).—This rather old-fashioned flower is known to almost every one, and esteemed for its precocity and perfume, the varieties of which, both with double

flowers, and those whose blossoms are single, are now becoming numerous. It is truly a delightful ornamental evergreen under-shrub, growing about two feet high. Much pains lately have been bestowed on this flower, and the labors of florists have been rewarded with some certainly odd-looking results; brown, red, and even purple are now found among them, nor are they altogether without hopes of yet producing more of the same colors in a very vivid strain. In our mild California winters it blooms out of doors the whole season, although not quite so much in the winter months as in the spring and summer. The double varieties are somewhat more tender than the single ones, and may require a little protection during some of our white frosts, and sometimes a cold frame is awarded to the younger plants. To make fine plants of these, cuttings should be taken in the summer or fall, and struck under glass in rather a shaded locality, potting them as soon as it is known they are rooted, in sandy loam and leaf mould; such plants become well established before winter, and when placed in the open borders grow luxuriantly, and are speedily covered with flowers. The single kinds are generally treated as annuals in the East, but are biennials, and even perennials here; a sowing is made about the time recommended for striking the double varieties, and they are afterwards removed to final stations.

As we have before observed, there are now many varieties of the Wall-flower, and all are attractive, common as many of them are; but the best in cultivation, we think, is a semi-double, from Germany, so fragrant as to ravish the senses with its perfume; it has a more powerful aroma than the double, and also seeds freely, enabling us to in-

crease by that means as well as by slips. These slips should be planted round the pots, for if they come in contact with the sides the plants will root more readily. Due moisture is absolutely necessary to their striking root. In the fall pot them off, and treat them the same as seedlings.

THE CROCUS (Nat. ord. *Irids*).—Every one knows the value of these pretty dwarf harbingers of spring, and their cultivation being so simple leaves us only room to remark, that it is a mistake to place them in other than rich ground; no plants cultivated in our gardens delight more in, or make a greater return for rich soil, than do these. There are upward of a hundred varieties enumerated in florists' catalogues of every conceivable shade between white and dark purple, and many of them perfectly distinct. This complication of colors gives them a most agreeable and imposing appearance, as one of our first flowers. It is easily propagated by offsets or seeds; but the purchasing of the bulbs fresh from the East or from Europe, as offsets, is the most advisable mode to give the fullest satisfaction.

The Crocus does very well planted between the rows of Tulips, or else in clumps in the border, diversifying the colors so as to make a pleasing contrast. The bulbs or corms should be dibbled in about two inches deep, and may be allowed to remain in the ground several years, but it is best to take them up dry and pack them in sand till the autumn, and then planted at the same time as other bulbs. It is sometimes the case that many bulbs brought from Holland are kept for sale in seed stores until spring; persons should be cautious in purchasing them after January, although their appearance may be good; if planted much after that time they

will, in many cases, rot, as the ground is sometimes too cold to assist them in striking root. This, however, is not near so much the case in our mild California climate as in the East or in Europe. Bulbs of every description, if sold long after the proper season for planting, are dear at any price, therefore purchase them at the right time, even if you have to pay a much higher price; still, you will find them cheapest in the end. The Crocus delights in a rather dry situation, and a light, rich, sandy soil. In such a place it flowers profusely, and produces large roots; but in a wet, poor soil it dwindles away.

THE PRIMROSE, OXSLIP, COWSLIP.—The single and double varieties of these are to be regarded only as ornaments to the flower garden, and as such do not require a lengthened notice. They prefer a shaded situation, with loamy soil, and should have plenty of water in our dry summers. The double purple, lilac, and white varieties of the former are very handsome, and may be grown in pots as an assistance to the forced flowers in spring; these are increased by offsets, while the single ones are easily multiplied by seed, which they produce in abundance. There is another highly deserving member of the genus deserving to be particularly noticed, the *Primula sinensis*, or Chinese Primrose. So justly and universally esteemed is this little plant for its precocity and abundant habit of blooming, that it would be a rare circumstance to find any collection without it. The best time to sow the seed of this charming species is midsummer; the young plants have then time to establish themselves before the set-in of winter, and by being encouraged in the greenhouse or cold frame, will attain a size quite enough to be considered handsome,

without the naked scraggy appearance of older plants. They delight in a mixture of two parts leaf-mould, one of loam, and one of silver sand. Seed is generally rather difficult to procure, and that from fine varieties bears a high value. In order, therefore, to induce the plants to bear freely, let them stand in a moderate exposure only to the sun in the summer, or until sufficient is obtained. An upper shelf in the conservatory will be found the best for them, though it will be necessary to keep them well supplied with water in such a position, or the sun would be apt to destroy them. The double varieties of this flower are very beautiful, and require the same management. Besides those mentioned there are yet several species deserving attention, and should always be included in the list of alpine plants, particularly such as *cortusioides*, *farinosa*, *Pallassii*, *Scotica*, and *Simsii*. All these grow freely in a soil similar to that recommended for the Chinese Primrose, and require the usual management of plants of the same description, namely, to be kept in a shaded place in the open air through the summer, and to have but little protection, if any, in our winters. They all bloom at an early season, when flowers are valued even in our ever flower-producing clime, and being really beautiful in themselves, deserve all the attention necessary to grow them successfully. The Chinese double varieties are useful for bouquets in winter, although we are not so much in need of them as in the countries which have severe winters.

THE YUCCA (Adam's Needle).—The Yuccas are among our oldest plants, with conspicuous leaves and showy flowers; but we must not neglect our old worthy friends in our passion for floral novelties. All these plants do well in California, on account of our

semi-tropical climate. They are generally planted as detached specimens on lawns, similar to the Pampas Grass (*Gynerium argenteum*), and New Zealand Flax (*Phormium tenax*). Their leaves resemble those of the Aloe, though the thick succulent stem of these plants give them the appearance more of a Palm; the flowers are produced on an erect spike proceeding from the heart of the plant, and are very ornamental. Rich turfy loam and sand should be used to grow them in. There are a considerable number of species; the blossoms of all of them are greenish white, and on established plants are produced annually. They have a tropical aspect.

Yucca gloriosa superbum throws up a fine flower stem, and much higher than *Yucca filamentosa*—sometimes ten feet in height, and 200 flowers open at one time. Its leaves are also rather broader, and therefore more imposing in appearance. This, and all the tender varieties do well here. We have noticed some splendid specimens, especially *Y. gloriosa superbum*, at Mill's Seminary, Oakland. There are some good figures of these plants in flower in Vick's Floral Guide for 1877, just received, and which is a beautiful and most instructive annual publication, with a colored plate, and to obtain which every amateur florist should send twenty-five cents.

THE CULTURE OF JAPAN LILIES.

The elegance of these comparatively new additions to our collections is of that high and chaste order as to meet the taste and admiration of every beholder. No wonder, then, that they have so rapidly extended; for they are certainly desired, if not present, in every garden. Added to their universal-

ly admitted attractions of stately grandeur and brilliant coloring, may be mentioned their great docility in cultivation, being, in fact, manageable by the merest tyro, without trouble or other means than thoroughly good soil. They are grown in various ways—a portion are potted and brought forward in gentle heat, to afford an early bloom for the conservatory; others are placed in pots, but allowed to grow in a natural manner, so as to bloom after the first named; while a considerable number are planted into the beds of the flower garden, as permanent ornaments to that part of the charge. We mention this to show that their culture is attainable by any one, let his conveniences be what they may.

To grow them in pots for the greenhouse is the most usual practice, when their beauty is unquestionably heightened and preserved for a longer time than can be expected with those exposed to much drought here, and the vicissitudes of wind and hot sun, or of others influenced by a forcing regimen in the early stages of their growth. For this reason the bulbs should be potted in January or February, or the early part of March, in order that the new roots which are ordinarily protruded about this time, may not receive injury in the operation, and also that the required food may be present as soon as wanted. Large pots are essential to a vigorous growth. For a full-grown bulb, capable of flowering, the pot should be a foot or fourteen inches in diameter, and, if there are two or three bulbs together, of course a still greater size will be necessary, without being at all disproportionate, for the plants attain a height of from five to six feet, and should there be three or four stems the foot-stalks of the flowers will extend in a lateral direction, and form a

large head. The soil most suited to them is a mixture of turfy loam and peat, with a proportion of about a third of thoroughly rotten manure. This compost should be used in as rough a state as possible, with a proper regard to its being well mixed, leaving all the roots, sticks, and similar matters in it, and a good drainage being placed in the bottom of the pot. The soil must be pressed firmly round the bulb, leaving its crown about two inches below the surface. A light, airy shelf in the greenhouse, or the front of a cold pit, will be the best situation for the growing plant, until it has become too large for its station, and a removal either to some sheltered place out of doors, or where sufficient room can be afforded in the greenhouse or bow-window of a house, becomes necessary. About this time the base of the stems will be found to emit roots just above the soil which it is growing in, and, if some earth be drawn around them, small bulbs will be formed, which afford a ready means of increasing the stock. A liberal supply of water should be given daily while the plants are growing, and an occasional soaking of liquid manure will add to the general vigor. This treatment may be continued till the end of the blooming season, when a moderately sunny situation out of doors should be selected for the ripening of the season's growth, and a gradual reduction of the supply of water take place, until, by the end of summer, the soil in the pots is left dry, and the roots in a dormant and fit state to winter.

Those which are grown entirely out of doors—which may be safely done in our climate—should be planted in soil similar to that recommended for potting, and must have attention to sticking and watering in our dry weather, though the trouble they occasion is

scarcely worth mention, until their time of rest, when a thick layer of fresh leaves should be thrown over the beds, not so much for the sake of protection from our trifling frosts, as to preserve them in an equable temperature, lest they make a too early growth, and then suffer from adverse weather.

PLANTING.

As about this time, and particularly after we have more rain in some parts of California—the coast country being in a better condition, owing to the fogs which have for some time prevailed there—may be considered the continuation of the plant season, when most people have additions of some kind to make, a few hints on the subject may not be without their value.

The first point requiring attention is to guard the newly removed plants from the drying influences of the air; nothing retards their re-establishment more than this; it delays the healing of the wounds received in taking up, and consequently prevents for a time the formation of new rootlets. The matter next in importance, after taking off all the bruised portions of the roots, is to carefully spread them out in an equilateral manner, that the whole of the nutriment of the soil may be gathered from every direction, that each root may have its due and uninterrupted share, and that the plant may have an equal support on every side. This is an often-repeated direction, but seldom attended to, and yet of the first consequence to the future welfare of the subject. In the operation of planting, let the soil be thoroughly stirred for full three times the width of the hole required, that a suitable and pervious medium may be formed for the reception of the young fibres, and when

the tree or shrub is once properly placed, avoid treading on the ground more than is indispensable. We greatly prefer shaking the soil gradually between the roots, to the common practice of throwing on a quantity, and forcing it into its place by the action of the feet—a reprehensible method, that not unfrequently leaves cavities beneath, and in a retentive soil forms a puddled surface quite impenetrable to either air or water. For all ordinary purposes, a common stake driven into the ground is support enough against the winds; but if the subject is a large one, and a tripod of stakes be deemed unsightly, the same end may be gained as effectually by interlacing a number of small rods, so as to cover and extend beyond the space occupied by the roots, the ends of these roots to be secured by means of four cross pieces of stouter dimensions, and these again fastened by stumps, driven into the ground so as to keep the whole close to the earth. Galvanized wire to stakes is also very useful here. In the dry weather of our summers attention must be paid, of course, to the watering of all recently transplanted subjects, and when it is practicable, much assistance may be given to the plants by shading them from the intense heat of the sun; in all cases, a layer of mulch about the basis of the stem will be beneficial, and save a great deal of trouble.

The above directions are intended for choice trees, shrubs, and plants in gentlemen's grounds of villa and city residences, rather than the more common planting on farms and fruit orchards, although hardly too much pains can be taken in this matter in any respect.

TOMATO leaves are now said to be the remedy for curled leaf in peach trees.

Selected Articles.

EFFECTS OF EUCALYPTI.

The medicinal properties of the Eucalypti were known to "Ramrod" long before they were known to fame. The old sawyers and cedar-cutters used a decoction of gum-leaves for diarrhoea, and boiled them down into an ointment for cuts and bruises twenty years before my time. It is rather singular that British, French, and American chemists were the first to discover scientifically the valuable properties of the Gum tree, and announce them to the world. An Englishman was the first to discover the qualities of Peruvian bark.

As others are the first to recognise our prophets, so strangers have been the heralds of the hygienic properties of the Australian Gum tree; and while France, Algeria, America, and Italy are industriously planting out forests of Eucalypti, we are doing the best we can to get rid of them, but the day will surely come when Australians will be as anxious to preserve their Gum trees, and replant, as they are now to destroy and root out.

At least ten years ago I began to think that there must be some extraordinary properties in some of the Australian trees to counteract the malaria and miasma of certain tracts of country, and thenceforth endeavored to elucidate the matter by observations and experiments, the result of which afforded conclusive evidence that the different families of the gum species were all more or less possessed of disinfectant and medicinal properties of a most remarkable description.

For the sake of being definite, I shall speak of particular districts, and as the Clarence and Richmond Rivers have probably more swamps, creeks, and marshes than all the other rivers of the

east coast of Australia put together, they may be advanced as the most conspicuous illustrations of the power of the Eucalypti.

Along the banks of the Clarence, for nearly sixty miles, there is a strip of scrub land sometimes only a few hundred yards deep, and in places running away back for nearly a mile. Behind the scrub land is open forest, principally low-lying, and continuing away out into the back country, with here and there small tracts of brush interspersed. All through the forest country are immense swamps miles in extent, and to give the reader some idea of their size and number, in the parish of Ulmarra alone there is Sawyer's swamp three miles by one, Oregon's swamp four miles by one and a-half, Sweeny's swamp four miles by two, Racecourse swamp two miles by one, Avenue Point eight miles by two, and the Big Swamp ten miles long by two and three wide, besides scores of smaller swamps, and creeks, and water-holes innumerable; and between all these named extensive swamps there are not four miles of land dividing them if it were all put together. Two of these swamps, Oregon and Sweeny, dry up in long dry seasons, and the couch grass which grows upon them is something to look at. They are as level as a table, except a central channel, and I have seen them covered from end to end with couch grass eighteen inches high, one dense mass of luxuriant vegetation, in which hundreds of cattle and horses feed luxuriantly, and grow fat in a few weeks. Swamps of that description are not unhealthy, because the water is not long enough on them to allow swamp vegetation to spring up, but the others are of a different character altogether. The Ten-mile swamp, for instance, as a specimen of the whole, is a wonderful ex-

panse of country. Far as the eye can reach beyond and around, between you and the far off forest on the edge of the horizon, lies one vast extent of unbroken swamp, without a tree or a shrub; a dreary, gloomy solitude, where silence is only broken by the voices of wild fowl, and the dismal roar and rush of winds through the fields of dead and hollow reeds. To stand upon the edge and look forth upon the waste of marsh reminds you of Chaos looking from his sombre throne out upon the wasteful deep, and the picture is as mournful as Arabia Deserta, but if you jump into your canoe and push out beyond the first line of reeds and into the open water, and among the channels, the wild fowl that appear upon the scene change the soul of the sportsman, and make him feel as if he had reached the Elysian fields.

The average depth of water is six feet in an ordinary season, but the mass of rotten vegetation is beyond all human comprehension. Through scores of years the rushes and duckweed have grown, and rotted, and fallen in successive layers, until the accumulation has become a solid mass of foul, rotten, decaying vegetable matter, eight and ten feet deep, and in the clear channels there is about two feet of decomposed matter along the bottom.

The mass of stuff is so solid that you can walk about on it anywhere, although it would be rather awkward if you fell through; and swans, geese, ducks, etc., build their nests and hatch among the piles of rushes. Strange to say, the open water is as clear as crystal, and quite as palatable as the translucent wave of classical Enoggera, and far down in the depths you can see enormous eels, and mullet, and perch, in shoals, and of an immense size, three times greater than ever they become in

the rivers. The perch and eels will bite readily at a bait, and the eels also afford capital sport with the spear if skillfully handled, and I always relished them quite as well as those taken in cleaner waters, although they taste a little heavy when the swamps are very low.

In the flood of '63 there was a tremendous current down the centre of the swamp, and the rotten reeds were piled up in gigantic heaps, and away through the forest at the opposite end the current had swept enormous masses of swamp matter up against the trees, where it had banked up into mounds ten and twenty feet high, looking very much like Esquimaux wigwams or the reed houses of Livingstone's Makololo.

Now just think of ten miles of foul decomposing vegetable matter, impregnated with all impure and obnoxious material, giving off a constant atmosphere of miasmatic gases, enough to give the whole colony a ten years' monopoly of the choicest fevers and Asiatic cholera.

Even in the act of firing a "double," when all the charm the world had for me was centred in the two black ducks about to come to an untimely end—I have spasmodically put my hand to my nose to check the operation of a perfume which Rimmel or Gosnell never heard of and are never likely to unless they intend to provide us with a "London Sewer Bouquet."

After sunset these vast swamps are shrouded in a dense, white, sulphurous looking mist, smelling of that faint, oppressive, sickly odor peculiar to a graveyard or an old cellar in which ten thousand rats have committed suicide about a month before. Yet I have stayed out on those swamps all night, have slept in that malarious mist, have drank that water among the foul vegetation, day

after day for years; have waded up to my neck in water black as Erebus, and of an inky blackness, hundreds of times; have walked all day in my wet clothes, slept out all night in them scores of times; and never had a cough, a cold, a headache, or pain of any kind up to the present time.

Along those creeks and on the borders of those swamps are living hundreds of settlers, drinking the impure water, and living in that awful atmosphere of abominable smells and nightly malarious mists, and yet disease of any kind is unknown; the men are strong and healthy, and the children rosy and stout, and with three times as much life and three times as much of the devil in them as there is in the children of the city, with its doctors, and boards of health, and patent tile drainage.

The Clarence and Richmond are remarkably healthy, and they are thickly covered with Eucalypti from one end to the other. All those swamps and creeks are in a gum country, and, so far, no fevers or epidemic disease of a zymotic or any other description have appeared in any shape whatever.

Shooting for years among those swamps, I had every chance of seeing how they would affect the settlers, who all enjoyed the most perfect health, although scores of them used water of a kind which a city man would never offer to a vicious cart-house. I remember a family who lived on the bank of a big creek, from which they drew their water from a hole cleared among the vegetation. They had a boy about ten years of age who was seized with a most malignant fever, clearly produced by the poisonous water, and he died. His sister caught it also, and she died; but, beyond those two, it went no further, and was the only instance of anything

of the kind on the whole river. I have seen families living in places, and using water such as would astonish all the doctors in creation, and have been utterly astounded at their exemption from some frightful malady or disorder begotten of the miasmatic marsh in which they built and lived. That the gum-tree forests around them were the disinfectants, and the preservatives of health I have no earthly doubt whatever, and I have just as little doubt that there are many districts in different parts of Australia which will be unfit for human habitation when the forests are all cut down. Without the trees around them, I believe those vast swamps of the Clarence would become as deadly as the Pontine marshes of Italy, or the poisonous fever-haunted fens of Algeria. Many parts of Europe previously uninhabitable, are becoming salubrious under the magic influence of the *Eucalyptus globulus*, which appears to be the favorite, although I believe all the gum-tree species possess equally potent powers.

I am also of the opinion that there are many other Australian trees and shrubs which will one day develop valuable medicinal properties under the hand of the chemist, and that not altogether to the Eucalypti is attributable the marvelous powers which ensure health in the localities filled with all the agents of fever, and disease, and death.

We shall one day have to plant our young forests to ensure a supply of timber, for our trees can not last forever under the present rate of destruction. It is a serious subject, demanding the earnest attention of all Australians, who ought not to leave to foreigners the sole recognition of the value of our own trees.

The blue, red, spotted, and white gums will flourish luxuriantly upon the

moist barren country, while the tea-tree, turpentine, gray, and flooded gums adapt themselves to the low marsh lands or soft alluvial.

The Bloodwood (*Eucalyptus corymbosa*) will be the first of the gum family to become extinct if not propagated artificially, and it is one of the most valuable timbers in Australia.

—*Queenslander*.

RAMROD.

NOTES ON THE PHYLLOXERA.

The *British Trade Journal* says: The latest accounts from France say a great deal more about vine disease and bad weather than about wine. There is a great variety of misfortune among the wine-growers, but all are unfortunate in some shape. In the department of the Haute Garonne it is the weather which causes the despair. A wet spring, a warm July, and again a wet autumn, are making havoc with the prospect of the vintage. In the Rhine district phylloxera is the *bete noire*, and the alarm it causes is more intense than at the first outbreak. The learned commission which have at various times sat on phylloxera professed to have stamped it out, and when the wine-growers find themselves deceived they turn round in the worst of humors on the commissioners. In the Gironde the evil is so serious that land has fallen in value at least one-half. The Chamber of Commerce of Bordeaux fears that in many of the best vineyards the yield will not be one-tenth the average. A new commission has been appointed, and experiments for the stamping out of phylloxera are being instituted by all the agricultural and learned societies. In order to promote concerted action, monthly and fortnightly reports are to be issued by the commission. There is another trouble on the mind of the French vig-

neron. It has been discovered that latterly he has taken to coloring his wines with substances of questionable salubrity, such as fuchsine and rosaniline. A syndicate of wine merchants in Paris have memorialized the Minister of Agriculture to put down the practice.

The *Journal of Chemistry* says: The damage done in France this year by the phylloxera is set down at \$27,500,000, and this damage will go on increasing unless the French government can succeed better than science and M. Dumas in arresting the progress of this minute scourge. Never has the vine had such an enemy since the time of which Beranger sang:

When Brennus came back here from Rome,
These words he is said to have spoken:
"We have conquered, my boys; and brought
home
A sprig of the vine for a token!"

The only wonder is that wine remains as cheap as it is, and that, in spite of heavy city dues, really good ordinary wine can be obtained in Paris for a franc a bottle. A reward of \$60,000 is still open to anyone who shall discover an effectual means of destroying the phylloxera, with whose manners and customs science is now intimately acquainted.

M. Eyre Jr., Secretary of the State Vinicultural Association, of California, writes as follows to the *Napa Register*: Monsieur Anto Forest, French Consul, in a recent letter, sends me the following extract from the *Official Journal of the French Republic*, of October 6th, 1876. The simple remedy can do no harm in any case, and I hope some of our Sonoma friends will plant the red field corn as suggested. While such planting will not eradicate the phylloxera, it may save the vines, and by pulling up the cornstalks in the fall, root and all, and burning them, the insect itself will be

destroyed. In conjunction with the means lately recommended by Dr. Blake, we may at least hope for a cheap, easy mode of exterminating the pest. I translate the extract: "Mr. Gachez has written a note to Mr. Dumas (meeting of Academy of Sciences) relating to the destruction of the phylloxera by growing red maize between the rows of vines. 'After long and patient researches', says the author, 'I am convinced that the vines between the rows of which I had sown red maize were completely preserved from phylloxera. The insect abandoned the vine and attached itself to the roots of the maize. Last year, even, in the spring, the roots of the vines, since treated by this plan, were covered by phylloxera. This month, notwithstanding the most patient search, I have not been able to find a single individual of the species on them; but the roots of the maize were completely infested. The roots of maize sown in an adjoining field had no trace of phylloxera.'"

A NEW USE OF BOUQUETS.

Flowers in all the variety of their grace and beauty serve many purposes of showing love and honor, and of ministering comfort and delight. Flowers are strewed before the bride; they are put in the pathway to give an added charm to a welcome; they are used as decorations; they are presented as the most pleasant of gifts; and to the actor or actress nothing more grateful than the flowers thrown on the stage by their admirers among the audience. So desirous, indeed, are the personages of the stage of receiving these tributes that they are accused of having them made to order and presented to themselves by their own agents.

The bouquets given at the theatres

here are of moderate dimensions as a rule compared with those which are offered at dramatic shrines on the other side of the Channel. Some of these in circumference are almost as large as cart-wheels, and are rendered ugly by their mere size. The recipients are in the proud, but uncomfortable position of having honors thrust upon them which are greater than they well know how to encounter.

The bouquet of private life is generally, however, as we are accustomed to see it, a manageable affair; and a lady to whom two bouquets are presented would hardly take more than one with her into the company which she meant to honor with her presence. In such a case of *embarras de richesses* she would consult her convenience and her inclination—would choose either the bouquet which best suited her dress, or that donor she specially desired to favor, and the other flowers would be relegated to the decoration of her room, or kept, for consideration, until some more convenient season arrived.

It appears, however, that American practice, with regard to bouquets, differs considerably from our own. The Americans are lavish in their use of even costly flowers. We have heard of the "flower bells" (canopies of flowers) under which it was, not very long ago, the fashion for newly married couples to stand on the occasion when they were first "at home" to their friends. American ladies have told us that it is the custom to send large baskets of flowers on board the steamers which are to convey ladies from the States to Europe, and that the lady who receives the greatest number of these floral tributes is considered to be specially distinguished. The state rooms of a large steamer leaving New York will be crowded to excess and inconvenience with these

fleeting tokens of what we may hope is lasting regard.

We have also recently learned that in some towns of the States, Philadelphia for example, the number of bouquets by a lady at a ball is considered to be indicative of the number of her actual admirers of the other sex. A lady without a bouquet confesses herself without an admirer sufficiently interested in her to give her a simple flower. On the other hand, if a lady has several admirers, and each has sent a bouquet, she appears with the whole number. No donor is more favored than another. This may give rise to a sense of equality, and of leveling the claims of the admirers, but it is, to say the least, inconvenient to the lady and her partners. We have heard of a lady who appeared at a ball with ten huge bunches of flowers, some of which she had to trust to her partner, while she carried the remainder herself. We are told that "the whole of them would fill a wheelbarrow, and the effect was awkward in the extreme." This is easy to be believed.

The carrying of the bouquets is like the bearing by the Indian brave of the scalps of those he has killed—a token of victory. It is a fashion that we think is hardly likely to be imported from America by our belles who visit the Exhibition.—*The Queen*.

TRANSPORTATION OF RIPE FRUIT.

During the past few weeks a car at the Seventh Street depot has attracted much curious attention, and it is certainly worthy of description, as having a great interest to that portion of the public who confess a weakness for fine fruits. The car has the external appearance of a common freight car, but its weight is about 4,000 pounds more, and it is built on passenger trucks. It

consists of a refrigerator on wheels, such as has never been seen here before. The outside is of wood. Next to this is an inch thick wall of felt. Next is a layer of powdered charcoal four inches thick extending all around the entire car, and then is the interior lining, which is of galvanized iron. Projecting downward for three feet from the roof, running the full length of the car, and extending about half of its width, is a box, which is provided with three openings on the top of the car, and which is capable of holding more than a ton of ice. The doors to the car and the doors to the ice-box are so tightly clamped by patent fasteners as to completely exclude the air. Small pipes near the roof carry air very gradually from the ice-box, where it is admitted in small quantities, to the car proper, and by its condensed condition it sinks to the floor, and keeps the car at a temperature little above freezing point. The purpose of this car is to inaugurate a new era in the transportation of perishable goods. On September 27, this car, loaded with 2,000 pounds of fine California grapes, in boxes, left San Francisco by passenger train, and arrived here a week later. Since that time it has been opened daily for removal of a portion of the fruit, and yet the temperature has never been above 39 degrees, and the grapes are as sound as they were on the day they were picked. It need not be remarked that California produces the finest fruits of the world, and how to bring them to the East in good condition has for years been a problem at which hundreds have been working. In order to get them to St. Louis, it has been necessary to pick them when half ripe, and then rush them through by passenger train at an expense of \$900 freight per car, the outcome being not at all satis-

factory. By this new arrangement they can be gathered ripe, carefully picked free from imperfections, carefully handled, and then sent through leisurely by freight train at the expense of \$450 per car freight. This trial-car demonstrates the success of the invention beyond doubt, and fruits which have hitherto been considered too delicate for shipment can now be brought by slow freight. It may be wondered how any profit is possible with such an immense item of freight. This is easily explained. In the California grape season, which extends over many months, grapes can be had at one cent a pound. A car will hold 16,000 pounds, independent of boxes and ice. It costs about \$350 to pick and pack them. It costs \$450 freight by freight train to St. Louis, or \$900 by passenger train, or one-third more to New York. At wholesale here the grapes sell for 20 cents per pound, yielding a handsome profit. In other fruits the difference in price is even greater. The wonderful California vegetables can be brought here under like circumstances. Salmon, eggs, etc., can also be profitably shipped. In the car now here was brought a large quantity of luscious California strawberries, which were in perfect condition when taken out. The car uses about three tons of ice in a trip by freight train, requiring replenishing twice. There is not the slightest moisture inside, and a handkerchief rubbed on the galvanized iron lining remains perfectly dry, which accounts for the excellent preservation of fruit. The waste water from the ice-box is carried off by a patent arrangement that prevents ingress of air.

Taken as a whole, the invention is wonderful, and an examination of the car will repay a trip to the yards. Some New York and California capital-

ists have taken hold of the invention, active among whom is Hon. A. T. Spotts, son-in-law of ex-Mayor Brown.

The car was built at the Central Pacific shops at Sacramento, and many others like it are already in operation. —*St. Louis Republican.*

MATE, OR PARAGUAY TEA.

Among the novelties presented at the Centennial Exposition at Philadelphia is the Mate, a decoction of the leaves of the Mate tree (*Ilex Paraguayensis*). This tree grows wild in the forests of Brazil and the Argentine Republic, especially upon the various tributaries of the Parana and Uruguay; it is also found in the valleys of streams whose waters join the Paraguay to the northeast. The tree sometimes approaches medium-sized Apple trees in height, but the leaves are gathered mostly from smaller shrub-like plants. It is stripped of its leaves and branches almost every other year. Several varieties of this tree are mentioned, especially two: the mild or choice, and the strong.

At the exposition a pamphlet, in Portuguese, French, English, and German, written by Dr. Antonio Joaquin de Macedo Soares, presents the claims of the province of Parana, which exports mostly through the ports of Paranagua and Antonia. The exports of the fiscal year ending June 30, 1870, amounted to 31,777,408 pounds, and rose the following year to 36,073,713 pounds. The home consumption in Parana is almost 9,000,000 pounds per annum, and in Rio Grande de Sul nearly four times as much, not including large quantities consumed by natives, without having been marketed. An arroba (32.39 pounds) is estimated as sufficient for the consumption of a single individual about six months, if taken three times

per day, and this would cost about \$4 per annum, whereas an equivalent of coffee or of black or green tea would cost much more.

It is claimed that the Mate beverage is very nourishing. It is prepared either from the powder of dried leaves pulverized or from the leaves themselves by infusion. It needs intelligent experiment and observation to develop the real qualities of the plant, but it has become the favorite beverage of a large portion of the people of South America. It is less exciting than either tea or coffee, as it contains less of essential oil, while its larger proportion of resin makes it a better diuretic than coffee, though it is less rich in this element than either green or black tea. It has a pleasant aroma, and when taken with milk and sugar it is a good substitute for tea or coffee. It slightly stimulates the nervous system, but not to the point of sleeplessness. It contains as much theine as tea, and double the quantity found in the same weight of coffee-grains. It is sold in Rio Janeiro at about ten cents per pound.

GATHERING HORSE-CHESTNUTS IN PARIS.

The gathering of the glossy brown fruit of the innumerable Horse-chestnuts at this capital has just been done, for the first time, by paid agents. Hitherto these shining balls have been the prey of the children of the capital, who have devoted their energies to getting together the largest heap of them, and to string them into a sort of necklace that the wearers rattle as they go. But the eagerness with which the glean- ing was carried on, the frequent descent of the Chestnuts on the heads of the passers through the various ingenious methods adopted by the "boys" for

getting them "down," had caused the ripening of the nuts to be dreaded as a nuisance by the rest of the population; and the City Fathers have accordingly taken the matter into their own hands. What they will do with the immense mass of Chestnuts thus collected is not known, but the experiments which the last Emperor caused to be carried on with them resulted in showing that the Horse-chestnut is rich in fecula, glucose, and a singular substance that chemists have named saponine, which gives its well-known bitter taste to the Horse-chestnut, but also renders the water employed the most excellent detergent yet discovered for the most delicate tissues of all colors. The substance of the Horse-chestnut, grated and washed, yields a fecula equal to that of the Potato, and that can be used for the same purpose. The beauty of the Horse-chestnut, with the elegant fan-like leaves and the spires of white or pink blossoms, has rendered it a great favorite here, but it has the fault of shedding its leaves too soon. The first tree of the kind was brought from Asia and planted in Paris in 1665. Two others were planted here soon afterward, but for several years only these three were to be seen in France, one being in the park of the Hotel Soubise, the second in the garden of the Tuileries, and the third in that of the Luxembourg. The Ailanthus, Catalpa, and Acacia, also in great favor here, are found to resist heat and drought very well, but their vegetation is not sufficiently ample to render them satisfactory in streets, and the Plane, beloved of the Athenians of old, is rapidly acquiring reputation as the tree which more than any other is suitable for the planting of streets in large cities. During the tropical heat of last summer the Plane kept all its leaves and remained

fresh, green, and shady. The Elm is dying out from this city and the Plane tree is taking its place.—*Montreal Herald*.

LEAF PRINTING.

In an article on "Nature Printing" the London *Garden* describes various methods of obtaining copies of flowers and leaves from the objects themselves. The following, which is simple and easily tried, may be of interest to some of our readers:

By those who have access to a laundry roller press, or an ordinary copying press, the following method of direct printing may be adopted: The best paper to use is ordinary wove paper without water-marks, such, in fact, as is used for book printing. Those who can afford to be luxurious may use thin drawing paper. First select the leaves, and then carefully press and dry them. If they be placed in a botanical press, care must be exercised not to put too great a pressure on the specimens at first, or they will be spoiled for printing. An old book is the best for drying the examples to be used; then get a small can of printer's or proof ink, and a small leather dabber, which can be bought for a few pence at any shop where wood engravers' materials are sold. Take a bit of ink about the size of a pea, and work it on a small piece of glass or slate with the dabber until it is perfectly smooth. A drop or two, not more, of linseed oil will assist the operation. Having worked the ink perfectly smooth, give the leaf a thin coating, being careful to spread it equally, not to dab it on in blotches, or the clear effect will be lost. Having applied the ink, take a sheet of paper of the size required, and lay the leaf ink downward upon it, placing it be-

tween the leaves of an old book, which must then be subjected to a moderate pressure in a copying press, or passed between the rollers of the washing machine. If a press be not at hand, lay the book on the floor and stand upon it for a few seconds, an operation which answers the same purpose. Impressions can be taken with greater rapidity by this process than by any other, and a very little practice will enable any one possessing ordinary ingenuity to succeed in producing them. Soft book paper is the best for the purpose, and, previous to using it, place a few sheets between damp blotting-paper, which causes it to take the ink still more readily. At first you will find that you lay too much ink on the leaf, which then produces too dense an impression. After a little practice you will know how much ink to lay on each description of leaf. If you find the impression too black, use the leaf once again without inking it. If the midrib of the leaf be too thick, so that the parts near it do not come into contact with the paper, it must be shaved down with a sharp knife. Composite leaves, as of the Umbelliferæ, should be divided, and their parts printed separately; other details will soon be learned by practice.

LEMON CULTURE IN SANTA CLARA.

The following is from the San Jose *Mercury* of Saturday: "The *Mercury* has been presented by W. H. Rogers with a bunch of three of the finest 'Sicily' Lemons we have lately seen, which were grown in his orchard in the foothills near Los Gatos. The culture of Lemons and Oranges is, while not of particularly recent attempts in this valley, still of decided infancy as regards the success which has attended the ef-

forts, and the establishment of their culture upon any scale of business, or attention to the study of growing of what is probably not an indigenous plant in this portion of the State. Mr. Rogers' efforts, however, met with a success the most gratifying. His orchard embraces at the present time about one hundred bearing Lemon trees, and sixty Orange trees, all of which are now of but four years' growth from the setting. The Lemon trees, though of the dwarf species, have this year borne from fifty to a hundred or over Lemons each. Mr. Rogers expresses the opinion that with proper treatment the culture of both these fruits could be made extremely profitable in the 'narrow belt' of the Coast Range, if not throughout the valley. By experiments extending over several years he has ascertained that the same treatment will not do for both; that while the roots of the one spread near the surface, the other takes a deep shoot, the only proper way in which to grow it being the sinking of a pipe two or three feet deep into the ground at the time the trees are set, and occasional watering by means of the pipe, which naturally attracts the roots and so the desired moisture, without breaking the surface, which is found injurious to the tree. Mr. Rogers also informs us that by the course which he has pursued he has picked ripe Lemons from his trees every month since November, 1875, and that indications point to even better results when the trees shall have arrived at maturity. He has some Banana plants in fine appearance, and predicts a crop next summer. Thus far all attempts at the raising of Cocoanuts have failed, though he still hopes to succeed in this direction. The results of these experiments clearly show that, with proper treatment, even the exotics

of the southern portion of this State can be raised in Santa Clara Valley, and made paying as business investments. The idea should be taken advantage of by our small orchardists."

CALIFORNIA CANNED FRUIT.

Recently a San Jose correspondent of a San Francisco paper stated that during the season the San Jose fruit canning establishment had turned out a half million cans of choice fruits, among which were 100,000 cans of luscious Tomatoes, and likewise said that, so far as the putting up of the Tomatoes was concerned, the establishment was about perfect. One of the most encouraging features of this new and important industry is the fact that the fruit thus prepared is eagerly sought for in the California markets as well as by Eastern buyers. San Francisco dealers alone received over 60,000 cans of Tomatoes from San Jose, and the correspondent stated that they were anticipating Eastern purchasers, and negotiating for all that the establishment could produce. This is a separate affair from fruit drying, which is being successfully and extensively carried on in Amador, and will probably soon be profitably inaugurated in other mining counties, where large quantities of fruit are left every year to rot on the ground. Too much importance can not be attached to these processes for utilizing the fruit of the State, from which an immense revenue will be derived. While other communities are launching out in new enterprises, and exercising good, sound, hard sense in the practice of economy, Stockton appears to be following the example of Micawber, and "waiting for something to turn up." This city is surely as eligibly situated and as well suited for the canning of

fruit as San Jose; and there is no good reason why fruit drying should not be carried on here upon as extensive a scale as anywhere else in the State. The greater the number and diversity of local industries, the better assured is the prosperity of any town or city, and Stockton presents a wide and encouraging field for new industrial ventures, important among which would be an establishment for canning fruit for the home market and for export. During the past eleven months there have been imported into this State over 2,000 barrels of Currants, 1,636 cases; 314 casks, 124 barrels, and about 200 packages of Prunes, and the following quantity of Raisins: 249 packages, 9,593 boxes, 12,976 quarters, over 5,000 halves, 180 mats, and several barrels. Instead of importing dried fruits of any description California should be, and doubtless will soon become, a large exporter of the kinds in common use.—*Stockton Independent, Dec. 15.*

A JAPANESE SPECIALTY.

All readers know that the lacquerware industry is peculiar to Japan. It has, in fact, been its main interest for many years, and it is no doubt owing thereto that the Japanese have become such unapproachable artisans in fine wood work. The lacquer itself (locker, as it was pronounced for the writer by one of the attendants), is the sap of a tree, which is made into a very cohesive varnish, susceptible of a high polish. The wood work is "treated" with the natural preparation, either by successive coats of the gum, by which means a black coating is produced, or by admixture with red and white pigments or with gold dust, by which means the several varieties of black lacquer, gold lacquer, red lacquer, and white lac-

quer are produced. Of the four kinds, the black and gold are the most popular, though some of the red lacquer, resembling, over its fine carving, rare work in coral, is very much prized. It should be explained that the coloring other than black is introduced when the gum comes from the tree, when it has a kind of neutral tint, possessing the property of intensifying the color by successive coatings of the varnish. Some of the best effects are produced by "raised" lacquer work, such as trunks of trees, mountains, birds, and animals, etc., brought out in relief upon the plain surface. This is done by giving successive coats of the varnish upon the places it is sought to thus ornament until the requisite elevation is produced. The figures or natural objects have the appearance of castings glued or mortised upon the plain surface, and the amount of time and patience involved in the work can be imagined.—*Philadelphia Telegraph*.

ORANGES IN TUOLUMNE COUNTY.

Mr. J. Reynaud, who has a ranch at Green Springs, has an Orange tree on his place 15 feet high; diameter of the trunk, 6 inches. The tree is seven years from the seed, and commenced bearing this year. The fruit is large, the specimens measuring 12 inches in circumference. He has also a Lemon tree five feet high, grown from a cutting planted last year. He says Oranges and Lemons thrive on his place, there being no frost to harm.

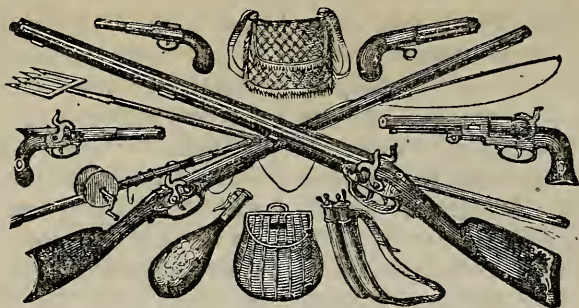
Mr. J. W. Keith, who has a fine ranch at Kanaka Flat, near Jacksonville, on Saturday presented the *Independent* with a dozen fine Oranges, seedlings, grown on his place. He has four trees 12 years old, which are each 8 or 10 inches in diameter. The crop this

year is about 1,500 Oranges. Last year some of the fruit, overlooked, remained on the tree through the winter and was gathered in June, sweet and luscious. Oranges can be grown in that section of country to supply this part of the State, and would pay better than hay or grain, which many farmers seem to think is the only paying crop.

Oranges and Lemons of mammoth size are also raised at Tuttletown, and at the French Garden, in Sonora.—*Independent*.

SANTA BARBARA OLIVES.

Dana B. Clark has shown us a sample of his olives of this year's crop from his orchard in Montecito. A thousand trees, five years old from the cuttings, standing on ten acres, have yielded about 500 gallons of berries. Nearly all the trees have fruited a little, but the 500 gallons of berries is the beginning. Their value on the trees is about 50 cents a gallon. What is raised on the land between the young trees in the way of beets, onions, squashes, etc., pays the expense of cultivation. Let us see what is the value of a full-bearing olive orchard, when planted in a good location. The full-bearing trees in the Santa Barbara Mission orchard, in the Mission San Juan Capistrano, and San Diego orchards, and elsewhere in good soil and good locations, year in and year out, will yield, on an average, about twenty gallons of berries to the tree, or three gallons of oil. To manufacture the oil will cost about one dollar a gallon. Taking the first-class, or virgin oil, with the second and the third, the whole will net \$3 per gallon, or \$800 per acre, about the same as to sell the berries for pickling.—*Santa Barbara Index, Dec. 4th*.



Rod and Gun.

THE FISHERMAN'S FUNERAL.

Upon the breezy headland the fisherman's grave
they made,
Where, over the daisies and clover bells, the
birchen branches swayed;
Above us the lark was singing in the cloudless
skies of June,
And under the cliffs the billows were chanting
their ceaseless tune;
For the creamy line was curving along the hol-
low shore,
Where the dear old tides were flowing that he
would ride no more.

The dirge of the wave, the note of the bird, and
the priest's low tone were blent
In the breeze that blew from the moorland, all
laden with country scent;

But never a thought of the new-mown hay toss-
ing on sunny plains,
Or of lilies deep in the wild wood, or roses
gemming the lanes,

Woke in the hearts of the stern, bronzed men
who gathered around the grave,
Where lay the mate who had fought with them
the battle of wind and wave.

How boldly he steered the cable across the
foaming bar,

When the sky was black to the eastward, and
the breakers white on the Scar!

How his keen eye caught the squall ahead, how
his strong arm furled the sail,

As he drove o'er the angry waters before the
raging gale!

How cheery he kept all the long dark night, and
never a parson spoke

Good words, like those he said to us, when at
last the morning broke!

So thought the dead man's comrades, as silent
and sad they stood,

While the prayer was prayed, the blessing said,
and the dull earth struck the wood;
And the widow's sob, and the orphan's wail,
jarred through the joyous air.
How could the light wind o'er the sea blow on
so fresh and fair?
How could the gay waves laugh and leap, land-
ward o'er sand and stone,
While he, who knew and loved them all, lay
lapped in clay alone?

But for long, when to the beetling heights the
snow-tipped billows roll,
When the cod, and skate, and dogfish dart
around the herring shoal;
When gear is sorted, and sails are set, and the
merry breezes blow,
And away to the deep sea harvest the stalwart
reapers go,
A kindly sigh and a hearty word they will give
to him who lies
Where the clover springs, and the heather
blooms, beneath the northern skies.

—All the Year Round.

THE TAKING OF FOOD BY FISH.

When a fish snaps up an object it first
opens its mouth and closes its gill-flaps;
and opens the gills when it closes the
mouth. When it wishes to eject a dis-
agreeable morsel, on the other hand,
it first, with closed mouth, opens the
gill-slits, and enlarges the mouth-cavi-
ty then shuts the gill-slits and simul-
taneously opens the mouth. By nar-
rowing the mouth-cavity throughout its
length, it now forces out the contents;
and in doing so, it is driven a little
backward by the reaction, like a can-

non when it is fired. If we think of it a little more closely, we shall see that, without the gill-slits, the fish could not snap up any object, and so could not eat, because the morsel, if it got into the mouth-cavity, would, on closing the mouth, be ejected. The reason is simply this: On opening, the mouth-cavity fills with water after the manner of a pump, and the morsel is taken in through suction of the portion of water in which it floats. It can now be held fast in the mouth only if the water finds a mode of exit so narrow that the morsel can not escape by it, it affords no easy outflow for the water. But the want is fully met by its gill apparatus, which presents a double row of long narrow slits, each of which is generally a good deal longer than the mouth-slit, so that the water can readily flow away without the morsel being carried along with it. But, again, if a fish were obliged to eject by its mouth the water it had taken up, it would be driven backward at each bite, and have to expend force wastefully in recovering its ground by swimming, which would be specially disadvantageous in flowing water. On the contrary, however, as the water flows out backward through the gill-slits, the fish receives each time an impulse which drives it forward, and the maintenance of its position in rapid water is thus rendered more easy. From these considerations it becomes possible to explain a number of the arrangements found in aquatic animals, as compared with those that live in air. Still regarding the finny tribes, we find remarkable large gill-slits in fishes of prey; and any one who has watched a pike or a trout in pursuit of its prey, will have noticed how widely it has stretched its gill-slits, so as to let the water flow off as freely as possible on all sides. If this were at any moment to accumu-

late in the mouth-cavity, the fish's mouth would be seriously compromised. It may with certainty be said that all fishes with remarkably wide gill-slits hunt their prey in long pursuit. Thus, among our fresh-water predaceous fishes, the pike makes the longest pursuit and has the widest gills. As a contrast we might take the gently feeding and nibbling plant fishes, such as barbel, carp, etc., which have narrow gill-slits. A similar difference is associated with the streaming of water. As a fish always snaps with its mouth against the current, it receives more water into the mouth the more rapid the current; and, therefore, river-fishes have, in general, larger gill-slits than fishes which live in still water. Thus, too, may be explained the remarkable correlation between the width of the mouth-slit and that of the gill-slits, inasmuch as narrow-mouthed fishes have narrow gill-slits, and wide-mouthed fishes wide gill-slits.—*Chambers' Journal*.

POISONING SQUIRRELS.

W. H. Ware, a large grain farmer near San Jose, has had a good deal of experience in poisoning squirrels, and has been quite successful. His method this year is to poison sweet apples, which the squirrels are very fond of. The apples are cut across from side to side (not from stem to calyx) two-thirds the distance through, then held open with thumb and finger, and what strychnine will rest upon the point of a penknife-blade is put in the centre and the halves pressed together. The poison permeates all through the apple. The apple is then rolled into a squirrel-hole, out of the reach of all live stock, and the work is done. The squirrels will eat and die. Mr. Ware likes his

method better than using melons poisoned. Birds and other animals are likely to eat of the melons, while the squirrels are not so sure to eat of them as of apples. Squirrels like apples at any season of the year, but most when there is no other succulent food, say in September and October. After the grain starts to grow and there is plenty of green feed, Mr. W. finds that squirrels like dry feed best, such as grain. The way he prepares this is to dissolve phosphorus by pouring hot water upon it, and with sugar or molasses and flour makes a thin batter, and pours this batter upon wheat, stirring till each kernel is coated. One stick of phosphorus needs two quarts of hot water, with a handful of sugar and enough flour to make a thin batter. Don't set the phosphorus in water upon the hot stove to melt, but melt it by pouring hot water upon it, in some suitable vessel. There is but one objection to phosphorus. It kills every rodent that eats it, but when they eat but little it acts slowly, and they are sometimes several days dying. Strychnine acts quicker, but is much more expensive. If squirrels poisoned with phosphorus die where hogs can eat them the hogs will be poisoned also. Poisoned grain should be put well into the holes, out of the reach of other animals. When one kind of poison fails of making clean work, try another, and you will in the end be successful.—*Agriculturist*.

COMPARATIVE SIZE OF TROUT IN EUROPE AND AMERICA.

The river, or yellow trout of Europe (*Salmo fario*) seems to vary in size in different waters. Larger specimens are taken in the Thames than elsewhere; those of five and six pounds appear to be common; eight or ten-pound fish

are occasionally reported in the sporting papers, and that trout weighing as much as fifteen or eighteen pounds have been killed in that river, is a well established fact. These large trout are in England usually killed with a minnow upon trolling tackle. In other English rivers the trout seldom go over seven pounds; and in Scotland, judging from the reports of fisheries in the *Field*, they will probably not average more than three or four ounces. Of course large fish are sometimes taken. Stoddart, in the "Angler's Companion," mentions one taken in the Don, 1853, which weighed eleven pounds; in the Tweed, 1850, seven pounds; in the Till, 1849, seven and a half pounds; Teviot, 1848, six and a half pounds. The Leet, tributary of the Tweed, has, Stoddart says, the largest trout that he is acquainted with, and in 1841 he took there with the fly, twenty-six trout that weighed twenty-nine pounds; in 1846, forty-one trout, twelve of which weighed a pound each, and one of three pounds. Professor Wilson (a great angler) killed in Rutherford water, with minnow, eighteen trout, of one and one-half pounds each, and as many of one pound, but these trout are evidently considered by the writer as being of extraordinary size.

A DEVIL FISH.

Dr. McKee has received from a friend at Santa Monica a specimen of the devil-fish, which was picked up on the beach a day or two ago. It was kept in a glass jar at Wollwebber's drug-store, immersed in sea water, many curious eyes gazing upon the singular-looking creature. It is a mollusk of the radiate species, and belongs to the same family as the star-fish—one of the lowest order of animate beings. The

body is of a lightish brown color, semi-transparent, and resembles, in fibre, the jelly-fish, which is frequently seen along the coast. When spread on a flat surface it would cover a circle one foot in diameter. The body graduates into eight tapering arms or rays, which are covered with innumerable little protuberances, every one a strong suction valve. By the combined action of these little valves it fastens upon the side of the glass jar, or upon a stick or knife, or anything coming in contact with it, and maintains a wonderfully strong hold for such a little and apparently slothful animal. A singular feature of this action is that, when the suction valves are set in operation, a dark liquid is seen to collect in the portion of the arm employed, and when released, it passes away like the flickering of a shadow, and is apparently disseminated through the body. In its natural state the fish captures its prey, and absorbs it by the use of these suction arms or feelers. We are all familiar with the old legend which magnified the devil-fish into a large monster, whose habit was to lap its arms about a passing ship and draw it bodily beneath the waves. The mollusk certainly looks devilish enough for such a performance, but we are inclined to doubt the marvel of growth which would fit it for such a herculean undertaking. Dr. McKee proposes to preserve his prize in alcohol, and will keep it in his cabinet of natural curiosities.

CALEDONIA HATCHING HOUSE. — Seth Green, Esq., informs us that there are now in the State ponds at Caledonia, some yearling hybrids—a cross between the brook trout and the California salmon. They do not resemble either of the parent fish, but look more like the salmon. He says: "We have some

two-year old grayling of our own hatching. Some of them are eight inches long. They live in a pond with some two-year old California brook trout, and with two-year old blue-backed trout from Maine. They all agree very well. The California brook trout are a much shyer fish than our native trout. They are not as tame, but they are a much hardier fish, and are a great deal more easily raised, and I think would do well in many of our streams in this State. The blue-backed trout do not do well, and I do not think much of them as a fish to stock our lakes with."

Editorial Portfolio.

OUR FRONTISPIECE.

We present our readers, this first month of the year, with a good likeness of the beautiful and most graceful *Salix caprea*, variety *Pendula*, or Kilmarnock Weeping Willow, for the engraving of which we are indebted to that zealous veteran and long-time promoter of agricultural and horticultural improvement in our State, Colonel Warren, editor of the *California Farmer*. This lovely lawn tree is a variety of the Goat Willow, or common Sallow. According to the directions given by Ellwanger & Barry, the world-wide known florists and nurserymen of Rochester, New York, in their handsome "Descriptive Catalogue of Ornamental Trees," this great round-leaved Willow grafted five to seven feet high upon the Comewell stock, forms without any trimming, an exceedingly elegant tree, with glossy foliage, and perfect umbrella head, unique in form. Vigorous and thriving in all soils, it is probably more widely disseminated than any of the finer ornamental trees.

That the utility and beauty of ornamental trees and plants are now becom

ing generally recognized and appreciated, no better proof is afforded than the great demand which has been created for them in all parts of the horticultural world. They have become a necessity in the garden and on the lawn, and every one who has a city garden of any extent or villa residence must have them. Parks and pleasure grounds have also become a necessity, and they require all this sort of trees for general planting, as well as specimens for arboretums.

Cuttings of ripened shoots of all the Willows merely require to be inserted in the soil during our rainy season; moist soil, inclining to be marshy, suits them best. Very dwarf shrubs of this family, propagated with more difficulty, should be struck in summer under a hand-light, or some kind of glass covering.

WORK FOR THE MONTH.

Before the issue of this number we trust we shall have a second plentiful rain all over the State, the last having taken place in October. If this rain should have occurred, the work of sowing, planting, and preparing the fields and gardens should not now be delayed.

Our nurserymen and florists are prepared to furnish a fine assortment, with many new plants, of trees, shrubs, and flowers, both useful and ornamental. Prices have become more moderate every year, and there is abundance of room for every tree and plant which is offered for sale. Our California climate generally requires quite early planting.

To those who have gardens we would suggest a complete overhauling. In the first place, have all your trees and shrubs properly trimmed and pruned. Your evergreen-trees and shrubs need it, to give them a good form; your Ro-

ses need it, to produce new wood and an abundance of fine flowers. After trimming, secure them well to their stakes, to protect them against our heavy winds. When all this is done we would further suggest the application of some good old decayed horse-manure, by spreading it over the ground, and then your gardener may go to work and trench, or at least dig up the ground well with a spade, taking care, of course, that all weeds and the manure are well worked in below the surface.

For lawns we would recommend a top-dressing of fresh or old manure, which should be allowed to remain upon the surface for a few weeks, in order that the rain may carry the nutritive qualities and particles into the roots of the sod, after which the remainder may be raked and cleared off. Most of our city lawns consist of made ground, the strength of which is soon exhausted, and unless a fertilizing process is resorted to, the grass can not be expected to grow uniformly nice and thrifty.

The planting of Hyacinths, Tulips, Pæonies, Lilies, Crown Imperials, Lilies of the Valley, Amaryllis, Anemones, Ranunculus, etc., should now be commenced, if not done before. Plant (after thoroughly preparing the soil) in a warm and moderately dry situation; a well manured sandy loam suits them best. Pæonies may be planted in a heavier soil, and they require less sun, and will bear more moisture.

The planting of seeds in the open ground should be delayed, although in this mild climate Mignonette, Pansies, Candytuft, and such hardy things will germinate readily; but we have found that the planting of such seeds in February and March is quite as good, and frequently much better. The ground at this time is cold and wet, and the-

seed is apt to lie dormant for many days, which often results in decay and rotting.

Sometimes we have in December, and this present month (January) unusually cold weather, which in many localities seriously injures *Heliotropes*, *Fuchsias*, *Geraniums*, and other soft-wooded plants. These, however, will come up again from the ground on roots.

Those greenhouses and conservatories which are not artificially heated are sometimes affected by cold and rainy weather. But even without artificial heat we may often see the following plants in bloom: *Cyclamen*, *Camellia*, *Azalea*, *Primula sinensis*, *Torrenga*, *Daphne*, *Salvia*, *Jasmine*, *Cactus*, *Cineraria*, *Begonia*, *Hyacinth*, *Tuberose*, *Hoya carnosa*, etc.

Plants in greenhouses should now be watered very moderately, and no shifting into larger pots should take place at this time. We find that plants in comparatively small pots do best in winter. Give fresh air plentifully; during clear weather it may be given from nine o'clock in the morning until three o'clock in the afternoon, unless heavy winds prevail.

If your *Coleus* or *Bignonias* show rotten leaves, remove them at once.

Seeds of greenhouse plants should not be sown yet, unless bottom-heat can be given. All that should be done now is to preserve the plants which are on hand; the propagating of any kind should be delayed until a more favorable time.

If it should be desired to have early vegetables, Lettuce, Cabbage, and Cauliflower seeds may be sown in a frame. Peas may be planted now.

The total number of Oranges received from Tahiti this season is 5,128,000.

UNIVERSITY OF CALIFORNIA EXPERIMENTAL FARM.

This farm, including the site of the University, contains 200 acres, much diversified in surface, and adapted to a great variety of culture. Only a small part of it has been brought into a proper condition for experimentation with crops, and no live stock is at present kept upon it. A large amount of work has been done during the year in horticulture. In the propagating houses, one of which is 20 by 30 feet, and the other 15 by 64 feet, there have been produced 10,000 *Eucalyptus* plants of 20 species; 5,000 *Acacias* of 25 species; 200 species of native and foreign conifers; also numerous rare forms peculiar to Australia, South and Central America, and elsewhere, and many species of textile, medicinal, and other economic plants, besides 112 varieties of *Roses*, 13 of *Azaleas*, 12 of *Camellias*, and 6 of *Magnolias*, for ornamental purposes. In the orchard there have been planted 141 varieties of Apples, 14 of *Siberian Crab Apples*, 82 of *Cherries*, 57 of *Plums*, 89 of *Peaches*, 22 of *Apricots*, 2 of *Quinces*, 15 of *Nectarines*, 73 of *Grapes*, 7 of *Blackberries*, 8 of *Gooseberries*, 8 of *Currants*, 34 of *Raspberries*, 35 of *Strawberries*, 3 of *Filberts*, 1 of *Asparagus*, 16 of *Rhubarb*, 6 of *Mulberries*, and all the species of *Walnuts*, besides many varieties of *Oranges*, *Lemons*, and *Limes*. Among the Apples are 9 new Russian varieties, and among the Peaches 17 of *Rivers' new Seedlings*.

The instruction in the different departments of the University is extensive and thorough. Economic Botany and Agricultural Chemistry are made the most prominent studies in the Agricultural course, both in the theory and its application.

GOV. STANFORD'S PRIVATE GARDEN.

In our last number we presented to our readers a description of this beautiful and costly residence, its gardens and conservatory. Mr. Jas. T. Murphy, the superintendent, has kindly furnished us with the following list of choice and some rare shrubs, evergreens, and plants to be found with their labels on the premises. This fine stock was obtained from Collie & Stewart, nurserymen and florists, 18 Post Street.

We observed buds of a fine plant of *Magnolia grandiflora* ready to give their handsome blooms for New Year's Day, exemplifying the effects of our mild and delightful climate even at this season of the year. This garden furnishes a practical and instructive example for a large city lot.

The pure and excellent article of Blue Grass Seed for the beautiful lawns was from the long established seed firm of J. P. Sweeney & Co., 409 and 411 Davis Street.

Cupressus Lawsoniana, California.

Veronica Imperialis, Europe.

Cupressus funebris, China.

Cerasus Lauro, England.

Ficus macrophylla, Australia.

Aezaloe Indica, India.

Araucaria Bidwellii, Queensland.

Kalmia latifolia, America.

Librocedrus decurrens, California.

Juniperus rufescens, Cape of Good Hope.

Corypha speciosa, California.

Pittosporum nigrescens, Queensland.

Eicalonia florabunda, Europe.

Juniperus oxycedrus, Northern Europe.

Araucaria Ruleii, Caledonia.

Juniperus glauca, Norway.

Myrtus buxifolia, Europe.

Myrtus commurries, Europe.

Ilex latifolia var., Europe.

Euonymus aurea, Japan.

Rhododendron ponticum, America.

Viburnum tinus, Europe.

Erica arborea, Europe.

Yucca aloefolia var., America.

Taxus baccata, England.

Erica Mediterranea, Mediterranean Sea.

Yucca quadricolor, America.

Metrosideros lanceolatum, New Holland.

Cryptomaria elegans, Japan.

Callistemon lanceolatum, America.

Agave Americana var., America.

Abies excelsa, Norway.

Cordilyne Ferrea, New Zealand.

Veronica versicolor, Europe.

Cedrus deodara (Sacred Indian Cedar), Nepaul.

Punica granatum, India.

Taxus fastigiata, Ireland.

Banksia grandis, New Holland.

Juniperus Atlantica, Southern Europe.

Phormium tenax var., New Zealand.

Thuja aurea, China.

Magnolia grandiflora, America.

Diosma alba, Northern Europe.

Eleagnus aurea, Japan.

Ilex aquifolia, Europe.

Corynocarpus lavigatus, New Zealand.

Juniperus sabinoides var., Northern Europe.

Aralia papyrifera, Japan.

Thujopsis Latevereris, Japan.

Polygala Daluiaisin, India.

Pittosporum Tobird var., Europe.

Grevillea robusta, Australia.

Ilex argentea, Europe.

Cryptomaria japonica, Japan.

Araucaria Cookii, New Caledonia.

Aucuba japonica, Japan.

Fabiana imbricata, Europe.

Buxus argentea, Europe.

Cedrus Atlantica var., Mount Atlas.

Juniperus Canadensis, Canada.

Cordilyne indivisa, New Zealand.

Corypha Australis, Australia.

Yucca filamentosa var., America.

Juniperus glauca, Norway.

Araucaria excelsa, Norfolk Island.

Cedrus Lebani, Mount Lebanon.

Cordilyne Fosterii, New Zealand.

Cryptomeria Lobbii, Japan.

Juniperus Bermudiana, Bermuda.

Veronica variegata, Europe.

Araucaria imbricata, Chile.

Frenella pendula, Patagonia.

Araucaria Braziliensis, Brazil.

THERE are in this State nine fruit-canning establishments in active operation.

TREES AND TREE CULTURE IN CALIFORNIA.

We are happy to know, that our State is now developing an extensive interest in tree-culture. No country can present better opportunities for this important economy. So far, the *Eucalyptus*, or Blue Gum tree has received more attention, and has been more extensively planted, than any other kind of shade or timber tree. In a late visit to Alameda County, we observed numerous groves of the *Eucalyptus*. This is the more requisite, as that county does not possess any natural forests, but merely the Oak scattered throughout the land by the hand of nature. The scattering growths of Black, Live, and White Oaks, chiefly on hill-sides in Alameda and Contra Costa counties, are valued at \$20 to \$50 per acre. Cord-wood on the stump sells for \$2 per cord. About twelve years ago Cork-oak acorns were planted which are now in bearing. The timber of Lake County is mainly Oak and Pine. The former is in the valleys, twenty to fifty large trees to the acre, some trees making as much as twelve to sixteen cords. Cord-wood sells there for \$3.50. In some of the northern counties of our State there are large belts of Redwood, many of which are available for shipment. Farther back, and not yet convenient for that purpose, are forests of valuable Sugar and Yellow Pine. According to the "Statistics of Forestry" in this State, published in the Report of the Commissioner of Agriculture, the woodland of Merced County lies on the Merced River; which is principally Oak and Willow, with some Ash, Cottonwood, and Maple. Wood there sold by the cord brings \$8. The most valuable forest-area of Napa County is in the

Napa Valley, forty miles long, with an average width of three miles. Through it are scattered different varieties of Oak. There are, in the mountains, forests of Pine and about one thousand acres of Redwood, not yet accessible, valued at \$20 per acre. The Black Elder makes superior charcoal for gunpowder, and a species of Laurel, excellent timber for ship-building. The most valuable timber in Placer County is Sugar Pine. Here many shingles are made. The most valuable timbers in Plumas County are Sugar, Spruce, and Yellow Pine, California Cedar, and Balsam Fir. Tracts of timber here yield two hundred cords per acre. The height of this timber ranges from 175 to 300 feet. San Diego County has no forests. Some Pine and Oak trees are found along the ravines near the coast. San Joaquin, with the exception of narrow belts in river-bottoms, has no timber. Forest cultivation, therefore, should claim attention. Australian Gums would most probably be here, as elsewhere on our slope, most successful. Santa Barbara has also very little timber. There are some Oaks along canons, and Sycamores lining streams. Summer fires in many of the counties do great damage. These fires are chiefly started by travelers and hunters. Some of the finest forests are annually destroyed in this way.

By a law of California, approved March 30, 1868, the Board of Supervisors in each county are empowered to authorize owners of lands to plant and cultivate, along the public highways, shade and fruit trees, specifying the species to be planted, at what age, at what distance from each other and from the road-bed, and making the necessary rules for their protection, etc. Four years after the planting, upon receiving a duly certified statement

of the number then in a thrifty condition, the Board are directed to pay to the cultivator \$1 for each such tree. In October, 1872, the State Board of Agriculture called attention of County Supervisors to this act, and urged them to do what is in their power to encourage a compliance with its provisions. They advised that the age be fixed from three to eight years from the seed and the minimum distance between tree and tree at 12 feet, and recommended the planting of the following varieties: Black and honey Locusts; black, white and fruiting Mulberries; Osage Orange, native and eastern black Walnut, American Chestnut, American, European, and Cork-bark Elm, the different varieties of Maple, Tulip tree; Carolina, Lombardy, and silver-leaf Poplars; the different varieties of Ash, Apple, Pear, Plum, Cherry, Almond, and Fig trees; the Eucalyptus or Australian Blue and Red Gum tree; Monterey, Sugar, Yellow, Spruce, and Scotch Pines; Norway Spruce, Balsam-fir, European Larch, Monterey and Italian Cypress, and California Laurel; and Redwood.

CALIFORNIA FRUITS.

These valuable, important and wholesome products of our State have now a world-wide renown, owing to the success, vast abundance, and perfect condition with which they are cultivated. We are comparatively almost entirely free from the ravages of noxious insects which abound more or less in other States of the Union. Plums, Apricots and Nectarines are especially free in this respect, the Eastern States being rarely able to produce these in large quantities, and some seasons hardly any at all. Here they are greatly prolific, and free from the injurious and

blighting effects of any worms, produced from the eggs of the stinging insects, curculios, etc.

About the 20th of December, there was published in the rapidly improving *Evening Post*, both in the daily and weekly editions, an enlightened and nearly exhaustive article on our "Fruit Crop; a description of the varieties of each kind raised; soil and climate best suited to their production, etc." It was derived from the best informed dealers in the city. It meets with our cordial approval. The only criticism which we have to make on the paper, is the falling into some errors, which either through want of memory in the writer, or the fault of the printer, occurred in the names of some of the fruits described. The writer states: "There are several varieties of this berry," (the Strawberry), "the principal being the *Propagated*, British Queen, and Victoria." Instead of the "*Propagated*" it should have been the *Prolific*—Longworth's *Prolific*—a berry which was originated by one of that zealous horticulturist's gardeners, near Cincinnati. In speaking of the two sorts of Blackberries chiefly cultivated, the reporter says: "There are two varieties of this berry, the Lawton and the Kittering." This last should read Kittatinny. There is only one kind of Raspberry which is correctly named. There might have been added, that that one is the Fastloff. In describing the two varieties of Gooseberries, the paper mentions that there are two varieties, the wild and the English Gooseberry. The word wild might mean that uneatable kind that is found in many parts of California. It would have been better to have said that this wild sort was the Houghton Seedling, which was discovered in a northern portion of the Eastern States. In speaking of Cur-

rants, the author of the article mentions that there are three varieties of them, the Red, Black and Yellow. The writer says: "Black Currants are beginning to be raised in San Lorenzo, and are likely to be a success, as they are much better flavored than the Red, with which the market is glutted." We must here take the liberty to observe that the flavor of the Black Currant is so distinct and peculiar, that but few persons can be said to be fond of it, and it is totally different from any other variety of that fruit. On first tasting it, it is something similar perhaps to the first eating of an olive, or a persimmon, or oyster. It is not by any means generally liked. The use chiefly made of the Black Currant is to make jelly or jam of it—good for coughs and sore throats, and much used for such purposes in Europe, and the East in this country. The "*Napoléon Bigarow*" Cherry, should read *Bigarreau*. The "*Alton*" should be written *Elton*. The "*Mureperck*" Apricot, should be named *Moorpark*, a place in England. Green Gages for Gauges, (this probably is merely a clerical error.) "*Newton Pippin*," for *Newtown Pippin*. To "*Spitzenburg*" should be added *Esopus*, which is the best of the three *Spitzenburgs*, namely, the *Esopus*, the *Newtown*, and *Kaighn's*.

It may be useful and interesting to recapitulate the chief localities of the cultivation of our different fruits given in the, upon the whole, capital description in the *Post*. Strawberries, of which the *Prolific* is the most marketable, are produced mostly in *Alviso*, *Santa Clara*, and *Florida Station*, near *Sacramento*. Blackberries and Raspberries in *Santa Clara*; Gooseberries are grown chiefly in *Centerville*, *Haywood* and *Contra Costa*; Currants at

Haywood, and especially in *San Lorenzo*; Cherries are produced principally in *San Leandro* and *Napa Valley*; Apricots in *Marysville* and *Suisun*; Peaches in *Sacramento Valley*, *Suisun* and *Marysville*; Plums in the valley of *Santa Clara*, *Marysville*, and *Davisville*; Apples and Quinces in *Santa Clara*, and indeed all over the State. Pears come chiefly from *Santa Clara*. We need hardly say that Oranges come principally from *Los Angeles*, some also in *San Bernardino* and other southern counties. Lemons are grown chiefly in the southern portion of the State. Oranges have lately succeeded well in *Suisun*, *Sonoma*, *Napa*, and other northern counties. They are generally quite as good as those of *Los Angeles*, finer in color, and resemble the Italian. As to the prices of fruits here: Strawberries sell, of course, very high, even \$2 per pound when they first come in; but in a week or two they fall to 15 cents per pound, and in the fall season, to 5 cents per pound. Raspberries, after coming in a while, sell at about 18 cts per pound. The common *Houghton Gooseberry* brings from 6 to 7 cents per pound; the large *English* sells much higher, and owing to the difficulty in raising it free from that pest, the mildew, is never very plentiful. Currants are sold as low as \$1.25 to \$5 per chest, or about one cent a pound. Cherries bring from \$1.25, in the beginning of the season, to 10 cents per pound in its fullness. The *Moorpark Apricot* sells from 25 to 2 cents a pound. Peaches sell quite low after reaching market in large quantities; the earliest sort, of course, bring the best price. Plums are very plentiful every year, and sell at a very reasonable price. Italian and German Prunes are worth 25 to 8 cents a pound. The true *Green Gage*, su-

perior to all Plums, is not much grown, and seldom found in our market. Apples bring from \$5 to 25 cents a box of 50 pounds. Pears, the best, such as the Winter Nelis, are worth from \$5 to 25 cents the box of 60 pounds. Quinces are worth from six bits to \$1 a box of 60 pounds. Oranges from \$5 to \$1 a hundred. Lemons bring nearly the same as Oranges. Limes are worth 50 cents to \$3 a hundred. The best of these latter come from Mexico; a few are grown in Los Angeles, but are inferior to the wild Limes of Mexico. The above items, for which we are indebted chiefly to the *Post* article, may be interesting to our subscribers abroad. There can hardly be any limit to cultivation of the whole round of fruits in California—fresh, canned, or preserved—both on account of the favorable climate and its extent of suitable lands; and there is almost an illimitable demand for them abroad, owing to circumstances being so much less favorable there to their growth on account of the rigorous climate and injurious insects.

FRUIT CULTIVATION AND REPORT OF FRUIT AND VEGETABLE MARKET.

In consequence of the temperate character of the winters of California, our planting time for fruit and other trees lasts from the commencement of our rainy season to early in spring. A vast deal depends upon the proper preparation of the soil. The ground can not be plowed too deep, and it is highly advisable to perform this operation two or even three times, especially if the soil is of a very compact nature, and in the latter case sub-soiling it will be very important, and for the permanence of its best qualities for the future thriftiness of the trees. A good au-

thority on fruit growing advises the following method of planting as a general rule: "Dig the holes circling 3 feet in diameter, and 2 feet in depth; the rich soil of the surface should be thrown out on one side, the balance on the other side of the hole. In refilling the hole, throw in the surface dirt first, which will leave the richest part of the soil where the tree will receive the most benefit from it. Fill up the hole to a proper depth to receive the tree without bending the roots, keeping it about the same depth that it stood in the nursery. Fill in about with loose dirt until the ground about the tree is level, then the planting is done." The ground should be kept clean of all grass and weeds, and well cultivated and loose. Small vegetables may be raised between the trees, but should be planted a little distance from them, until they have made a growth of about two years. Currants, Raspberries, and Gooseberries may also be allowed to grow between them till the trees have grown so large as to shade them too much. The distance that the trees should be planted apart are: Standard Apples, 24 feet each way; Pears, 18; Standard Heart Cherries, 24; Duke C., 16; Almonds, Peaches, Plums, and Nectarines, 20; Apricots, 24; Gooseberries, English, 3 by 5 feet; Houghton's Seedlings, 6 by 8; Currants, 2 by 5; Blackberries, 8 by 8; English Walnuts, 40 by 50; Grapevines (in vineyard), 7 by 7.

The very common practice in regard to manure is to apply a very large quantity immediately around the trunk of the tree, which is decidedly wrong, as it creates an excess of heat and enfeebles the growth of the tree. The proper way is to apply a sufficient top dressing broadcast between the rows, and should be well plowed in where it can

reach the extremity of the roots. There are many rich soils where manuring is unnecessary.

Mulching should be practiced in very dry soils, and only with newly planted trees. Would recommend sand to be thrown around the tree to the depth of three or four inches, and about six feet in diameter. It should be applied early in May. In protecting trees from the heat of the sun in summer, it is only necessary to protect the trunk. This may be done by means of two boards set together forming an angle; this is placed on the southwest side of the tree.

It is labor thrown away to make orchards near the ocean on the bare hills and valleys, as the strong, and often cold gales there prevailing will injure, if not nearly destroy the trees.

The Pear tree in every portion of the Union appears to be more hardy than the Apple tree, and is not so sensitive as to locality, but, like nearly all kinds of fruits, succeeds best in a deep, rich, and moderately dry soil. We quote the following from an experienced fruit grower in Sonoma County:

"The Peach tree succeeds best where the climate during the summer months is warm, ranging from fifty to ninety degrees, and the soil rich, moist, and loose. In a cool place this fruit is often of an inferior quality, juicy but insipid.

"The Plum tree should have a rich, moist soil, and when planted in poor land manure should be used unsparingly.

"The Cherry may be grown to the highest of perfection when the land is a deep, rich, sandy loam, the water at no time standing nearer than eight feet of the surface of the ground, and where the temperature during the summer months ranges from 40 to 80 degrees.

"On Mahaleb stalks the Cherry can be grown quite successfully where the soil is much more wet and heavy.

"The Quince, valuable for preserves and jellies, can be grown on moderately wet land, and will produce enormous crops.

"Almonds, we have experimented with two varieties of trees for a few years, and they have fruited to some extent. Like the Apple, it succeeds best when out of the reach of the coast winds, but can not stand the heat of some of the interior valleys. We know of no better recommendation than to say that as a general rule where table Grapes can be grown, the Almond will flourish.

"The Grape may be said to do well in almost any location in California that is out of the damp winds and fogs that prevail along the coast; even in some sheltered locations very near the coast they may be grown quite successfully, but not of the best quality.

"The Currant is one of the most valuable of all the small fruits, and is being used extensively for jelly, as well as for table fruit and pies. Like the Cherry, it should have a cool summer climate, and a loose rich soil.

"The Gooseberry should have a moderately dry soil, with plenty of manure and good cultivation. If grown in cold, damp places the fruit will be subject to blight and mildew. The Houghton's Seedling, however, may be grown in almost any location.

"The Blackberry should have a warm moist soil to succeed well."

As the holiday season approached the retail fruit and vegetable markets began to assume a most glowing and attractive appearance. While our brethren in the eastern portion of the Union are pinched with the cold, and the ground is frozen there, we are reveling in a

warm sunshine and mild atmosphere, and are enjoying many of the fruits and vegetables of summer, as well as the autumn (including good and large Strawberries), many of which fruits and vegetables they enjoy only for three or four summer months. Near Christmas, of course, the stocks of fruits and vegetables are increased greatly, and the best of each variety is brought to the front. And what an exhibit it is! Only California can make such a one at this time of the year. Perhaps at this season of the year the fruit-market has never made a finer display. This is to be attributed chiefly to the late very favorable seasons for the growth and best qualities of fruits of all kinds. A plentiful rainy season is always favorable to their flavor and juiciness, especially those coming from the foot-hills. But with regard to Grapes, the continued absence of rain lately has been favorable to the supply of them, as it is as great nearly as it was in the height of their season. Oranges are plentiful from Mexico, Los Angeles and Solano Counties, the last-named being much the finest, and retailing at \$1.50, while the others bring but 50c. to \$1 per dozen. The list of tropical fruits includes Bananas and Pineapples from Mexico and the Hawaiian Islands, and Limes from Mexico and Los Angeles. A few Strawberries are still to be had, but Raspberries have just disappeared. Apples and Pears are plentiful at \$1 to \$2.50 per box, delivered. In vegetables little change has taken place. The first new crop Green Peas from Warm Springs arrived during the week, and are selling readily at 15c. Yesterday a shipment of new Potatoes was received from Half Moon Bay, retailing at 6c. to 8c. per pound.

The retail marketmen reap a harvest during the holiday season, and usually

vie with each other in extraordinary efforts to present a display commensurate with the importance of the occasion, and this can not by any means be complained of. Entering the California and Sutter Street markets boxes of large and delicious Strawberries first greet the eyes. Looking further, one sees Lemons, Oranges, Grapes, Apples of exceeding beauty in color, Pineapples, Bananas, new Potatoes, Green Peas, String Beans, Asparagus, Parsnips, Turnips, Radishes, Celery, Sweet Potatoes. At the floral stands, Ferns, Roses, Pinks, Violets, Geraniums, Pansies, Heliotropes, Fuchsias, and Mignonette may be seen exquisitely blended in bouquets, or displayed singly. A feature of beauty that arrests admiration is the appearance of bouquets arranged in crevices of the oyster shell mounds, which suggests the idea of natural flowers struggling for a foothold among the rocks of the hillside.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING DECEMBER 31, 1876.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 18 Market Street.)

BAROMETER.

Mean height at 9 A. M.	30.17 in.
do 12 M.	30.16
do 3 P. M.	30.16
do 6 P. M.	30.15
Highest point on the 7th at 12 M.	30.25
Lowest point on the 22d at 6 P. M.	30.01

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	49°
do 12 M.	56°
do 3 P. M.	57°
do 6 P. M.	51°
Highest point on the 13th at 12 M.	64°
Lowest point on the 11th at 9 A. M.	43°

SELF-REGISTERING THERMOMETER.

Mean height during the night	39°
Highest point at sunrise on the 23d.	44°
Lowest point at sunrise on the 16th.	34°

WINDS.

North and north-east on 25 days; south-east on 3 days; south-west on 3 days.

WEATHER.

Clear all day 14 days; cloudy all day 1 day; variable on 16 days; no rain.

RAIN GAUGE.

Inches.

Total up to date..... 3.21





PAINTED EXPRESSLY FOR VICK'S FLORAL GUIDE.

SUMMER BOUQUET

Lithographic & Chromo Co of Rochester N.Y.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. VII. SAN FRANCISCO, FEBRUARY, 1877.

No. 2.

THE HISTORY AND CULTURE OF THE FUCHSIA.

“Beautifully fair,

As graceful in its loveliness as a maiden’s flowing hair.”

This favorite, beautiful, and most fascinating flower is said to have been brought from Mexico by a seaman, who presented it to his mother in England, some time about the year 1780. The plant was placed in the window, when it attracted the notice of a gentleman who was riding in the locality (Limehouse near London); in a few days after he first saw the plant he had occasion to visit Messrs. Lee’s nursery, at Hammersmith, where, after viewing the thousands of plants in that establishment, he distinctly told Mr. Lee he had seen a much more beautiful plant in an old woman’s window the other day than he had seen in his (Mr. Lee’s) collection. Well, Mr. Lee thought, to use his own expression, that the gentleman had overestimated the beauty of the plant when he pronounced it to excel all he had seen, but when he told Mr. Lee it was a dwarf bushy plant, completely loaded with crimson flowers exactly the shape of ladies’ earrings, he began to think it was some

novelty, and inquired in what locality he had seen it, and being answered satisfactorily, after the departure of the gentleman, Mr. Lee went and found the tree in question; inquired of the owner the price, who told him her son had brought it home with him on his last voyage, and would not part with it for the “Indies of gold,” because she never looked at the plant without thinking of her son. But Mr. Lee was so struck with the beauties of the plant that he would not take a denial, and offered her \$100—but no, nor \$250 would not buy; however, he eventually was the lucky purchaser of it for something like \$400. He named it *Coccinea*, and it was the admiration of every one who saw it. He got orders for 300 plants at \$5 each—so it turned out a very good speculation. This particular kind was *F. fulgens*.

Since that time, as is well known, there have been originated and introduced very numerous species, for instance, *excorticata*, *cordata*, *splendens*, *fulgens*, *corymbiflora*, *seratifolia*, *marginata*, *myerophylla variegata*, *Victor*, *Sunray*, *Standard*, *Majestic*, *globosa major*, *Day-dream*, etc.

We prefer the habit generally of the

plant to be that of *globosa major*, and the flower the same shape before it opens, but the sepals should reflex much more to show the corolla, which should always be distinct in color to the sepals; the four divisions of the corolla should be so arranged as to form a bell; the stamens should extend from the corolla to be seen to advantage, and the style or pistil still farther; as regards the size of the flower, the larger the better, so long as the parts are proportionate, and the footstalks long and strong enough to support them gracefully; and large and double as they are now, we should not be at all surprised to see them in a few years still larger and more imposing than they are in their most attractive features. We have now already many species where the corolla and sepals are very distinct in color; in these the contrast is very striking, such as pure white tube and sepals, and deep purple corolla.

The culture of this lovely flower is simple, and its flourishing in this favorable climate for all flowers, is most satisfactory for nearly all the kinds in the open air. Cuttings should be taken in the fall and winter from plants that have not bloomed, and kept growing in a temperature ranging from 56° to 60°; by taking cuttings at the time we have just mentioned, plants six, seven, or eight feet high, according to their different habits, may be obtained in the highest perfection in the month of May. Under even judicious management, in the course of six weeks these specimens, which were without fault in the spring, become sometimes languid on account of the numberless flowers they have produced, so that, as a matter of course, to have a fine exhibition through the season, there must be contrived a succession of plants.

In order to obtain this object, propagate the second stock by putting in cuttings as late as January, or if you buy plants, do so a month later; and for the third batch have young plants in the middle of March, which will keep up a show till the next autumn, or even much later with us, so that by three sets of plants we shall have a fine show for two-thirds of the year, beginning in May or June.

The "one shift system" of cultivation may be adopted in the potting of Fuchsias, but we do not altogether recommend it. The best plan is a progressive one, say from sixties, thirty-twos, sixteens, and eighths, which they ought to have to grow them to perfection. The Fuchsia is a plant of such easy culture that it will grow in almost any good garden mold, yet in this instance *soil* is a most important agent, and probably we differ somewhat from many cultivators in so far that we would not recommend the use of loam. Instead of the usual compost, we would use equal parts of well decomposed cow manure, leaf-mold, and peat, to which add half a peck of good sand to one barrowful of the mixed compost; sift it through a very coarse sieve for the first potting, that is in thirty-two-sized pots, for the second and third potting, merely chop it up; be particular to have free drainage, for this is essential to all plants; now, after the plant has been potted for the last time, and is beginning to fill the pot with roots, we would recommend a layer of well rotted stable manure on the surface, and on that a layer of nice green moss. The above remarks are more adapted for the high-colored Fuchsias; the light varieties do not require such stimulants, as manure, either fluid or solid, tends to flush the colors. We have at this time more than 200 varieties of this most el-

egant flower. It is better for it to be in a rather shaded situation, being rather impatient of drought.

THE FLOWER GARDEN.

Horticulture, and the love of flowers especially, is now becoming a recognized fashionable and favorite feature among the otherwise, necessarily to a large degree, utilitarian state of society in which we live in California, and this ever increasing taste and hold upon the general and popular mind, as it becomes more and more developed, will be sure to lead to the more universal practical calculation of our people, which of itself is sufficient to encourage and promote a good progress in all that will pay and please among our professional florists; and we are strongly disposed to believe that there is a stronger desire in this State, and notably in San Francisco, each season, to appreciate the beautiful, and to take an increasing delight in the well laid out and neatly kept garden and grounds. Would that we could observe this more in our private residences and public squares, parks, and Post Office grounds, etc., for there is ample room for improvement in all these. A late intelligent visitor here from the East, says: "I am surprised that with so much wealth, and with so much elegance of ideas in the house, there should be so few fine gardens."

The forms of the flower beds, their outlines, size, and various positions, to produce the desired effect, should harmonize with the surrounding objects and precincts. If they do not, obtain a competent and experienced professional gardener and florist, and one who knows something regarding English or Eastern gardening, to sketch a plan of improvement. Nothing gives

less pleasure or greater dissatisfaction to a well organized mind, as it scans over and expects to find the harmony of effect, than to see a medley of incongruities. *Multum in parvo* is a bad maxim here. A few judiciously formed, easily undulating, and well placed flower beds alongside of the walks, and bordering at intervals a surface of Blue Grass, will always be more in keeping with the eye of good taste, than a crowding and breaking up of the whole; of course there are modified exceptions, as, for instance, a purposely designed flower garden, but even in this case there is a possibility of error. It may be so situated as to give a glare of varied color over the whole place, and hence become obnoxious by subduing the effect of everything else; while good arrangement would have it located in a spot by itself, ready of access, and seen to the greatest advantage from the most suitable positions. Whatever is attempted in these matters ought never to disturb the general harmony of individual details, or destroy the effect of other parts, and if a place be small, it is much better to have one grand feature, than to be dabbling with a list of each, producing nothing, and cramping up everything.

In making preparations for improvement, some attention ought to be given to the arrangement of flowering plants. Those of large and coarse habit never look well in small or lightly formed beds, while if the same be transferred to the shrubbery, or formed into heavy masses, away from the near vicinity of the promenade paths, they are seen to advantage, and often present a noble appearance. On the other hand, finely colored and delicate flowers are better seen, and their peculiar characters displayed, when more immediately near the eye; the more humble grow-

ers, too, ought to be the nearest to the edges, and those of higher dimensions in the centre; thus, each is allowed to show itself in the best manner, and contribute its individual portion to the aggregate assemblage, and collective splendor of the whole. The various colors, also, ought not to be lost sight of, for however perfect all other parts may be, there is a deficiency in the general effect when this is neglected. We do not wish to dictate in such things, as every one has his or her own likings, and according to the individual notion of each, may, and often do think, that such trifles are of no import, and that all ought to be left to their own fancy; but apart from such considerations, and allowing for the full control of individual taste, we must take higher views, and look from artistic eminences. There are some landscape painters who excel others, in their more beautiful light and shade; in the striking and pleasing contrast, or the soft and complementary blending of the various parts, which collectively form the whole.

It is a great part of our study, to bring together a multiplicity of Nature's greatest beauties, to receive the enjoyment of her wonderful organism, as exhibited in the delicately colored petal, the graceful form of the bending branch, or the neutral tint of the emerald leaf, and it must be evident, that without a due observance of this important fact, we only grope in the dark, and can not produce that finish, or realize the pleasure that a well directed idea can accomplish. A pleasing effect may be gained in one or both of two ways, either by contrast or a complementary blending of shade; for instance, a white in juxtaposition with a scarlet or crimson, is so by contrast; while the former, in conjunction with a

light pink or lavender, harmonizes by the near approach, as it were, of co-relative blending; fix a bright yellow alongside a cobalt blue, and the brilliancy of both are neutralized, from the simple fact that, if really combined, a green would be the result; but place the latter near a clear pink, and both are more intense; and in this way we might go on enumerating examples almost without limit. We trust that in all these particulars San Francisco is going forward, however, and not going backward. We have now many houses in the midst of lovely lawns, bright with flowering shrubs, and perfumed with rich fragrance from Pittosporums, Cape Jasmines, and beds of Heliotrope, Verbenas, and Mignonette. Let "Excelsior" be our motto.

ON THE GENUS CALOCHORTUS.

There are many beautiful kinds of wild plants in California as well as in other parts of the world, which are seldom if ever seen in ordinary collections. That this should be so is a matter to be wondered at. It can not arise from any lack of interest in the subjects, for very many might be mentioned of superlative loveliness, that are yet included in the number of the neglected; and among them is the *Calochortus*, the whole of the species of which possess high claims on the culturist's attention, as beautiful ornaments both for the conservatory and the open borders through the summer, even to the beginning of autumn. We have often seen and much admired the *Calochortus* growing on the range of mountains which border the lovely and fertile valley of Napa, and this, when most of the rest of the wild flowers and plants had ceased to bloom, either from the lateness of the spring, or the drought of

the summer months. There is never sufficiently severe frost in our State, and especially on the sides of the Coast Range at an elevation of 200 feet only, to destroy this highly ornamental class of plants. The varieties of the Calochortus are *C. luteus*, producing yellow flowers, with deep rich spots; *C. nitidus*, purple; *C. splendens*, white, spotted; and the lilac *C. venustus*, real gems, obtainable, too, with a trifling degree of care. Their bulbs should be potted about February, using a mixture of peat, loam, and sand, in equal quantities, thrown together in as rough state as possible, observing at the same time to place an abundant drainage in the pot, as they are impatient of stagnant moisture, and, indeed, do not require profuse watering at all at any time. Three plants in a good-sized pot will be sufficient, and they should be grown in a cold pit, or a common garden-frame will suffice if properly protected, but this is hardly needful in our climate. In this position the pots may be plunged to the rims in ashes, and thus they may remain for some time in the spring, until, on the production of flowers, removed to the borders, or any desirable situation, receiving plenty of air, and an occasional refreshing from the watering-pot. In the borders they may remain either undisturbed after flowering, or the bulbs be taken up and remain in a dormant state until the following spring, when the previous year's treatment may be repeated, if desirable. They should have no more moisture at any time than they can assimilate; and any situation, whether in-doors or in the open air, will be found equally available, if this essential matter—not too much watering—can be secured. Some term this beautifully marked flower the Mariposa Tulip, from its likeness to a hand-

some butterfly. Mr. Vick, the great and most zealous florist, in his last most attractive, very pretty, and gracefully illustrated Floral Guide for 1877, states that "some years of trial have convinced us that these plants are not reliable in our climate for out-door culture. It is an elegant flower in its native home, beautiful as a butterfly; but we must content ourselves, even if we can not have all the beautiful things in the world."

ACHIMENES.

"When the wandering eye
Unfixed is in a verdant ocean lost,
ANOTHER FLORA then, of bolder hues,
And richer sweets, beyond our garden's pride."

This is a family of bulbous rooted plants of comparatively somewhat recent introduction, and commands much attention among zealous and refined florists. *A. longifolia* is an azure blue flower, the foliage a dark green and of fine habit, forming a beautiful contrast, growing about twenty inches high, and branching. The different varieties all vary in color of the flowers. We do not know of a family of flowers more prepossessing than the Achimenes, all growing easily from cuttings, but is principally propagated from bulbs that form in abundance at the roots of the plant, about the size and shape of a pea. Some of the bulbs appear about half an inch long and formed of small scales, not unlike the cone of the Pine. These plants are better calculated for the greenhouse, as the bulbs require to be planted early, and should be forced with some bottom heat, either of tanner's bark or stable manure, to make them flower early, otherwise it will be so late before you get them to flower that the cool weather to which our city is subject will prevent them from de-

veloping their beautiful and graceful flowers. These plants are tender, and will not bear even our light white frosts, if they are at all severe, therefore, until they are past, they should be kept in the house. The soil best calculated for the whole variety is a rich one, principally leaf mold and sand, with a good drainage, as the plant requires plenty of water; still, it must not be allowed to become stagnant in the pot. The *Achimenes* are not high priced, as they increase fast when kept in the conservatory; with those not having that convenience it will be best to purchase of the nurserymen in May or June, when in flower, as it will save much trouble and perhaps disappointment in bringing them forward. Those who wish to raise their own plants should, as soon as they die down, place them under some cover during the winter, or the bulbs may be packed in dry sand. In the spring the bulbs should be potted into two-inch pots, and placed in a hot-bed or warm greenhouse, and be kept moderately moist; in three or four weeks the plants will begin to appear. When you discover the pot filled with roots, repot them into four-inch pots, which will be large enough for them to flower in, as this plant does not extend its roots far, therefore it requires a smaller pot than many other plants, but a larger one is generally used than necessary, otherwise the top would be too heavy for the pot. The time of their flowering will depend upon the propagator, either late or early, the sooner brought to flower the better, although we have not enough cold in the fall or winter here to soon put an end to their flowering. Notwithstanding some difficulties attending this plant, the trouble will amply compensate in the magnificent display of flowers which is very profuse. In the

process of planting the bulbs should be covered with about an inch of soil. The growing temperature should be about 65° or 70° till near the expansion of their blossoms, supplying them with plenty of moisture in the atmosphere, though but a moderate quantity will be necessary for the roots; small sticks should be placed at each stem as they advance, to keep them properly arranged, spreading them out one from another, in order to admit air to the leaves, lest by crowding some of them become mildewed and rot off, and that the flowers may have room to display themselves.

SOIL FOR GARDENS AND POT PLANTS.

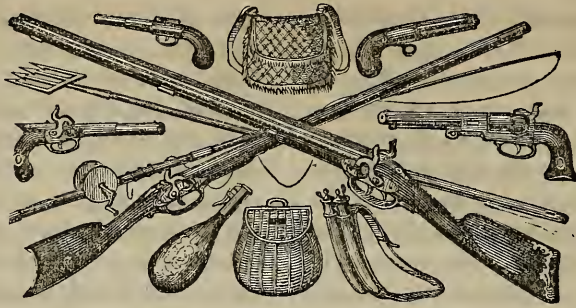
There appears to be a great diversity of opinion on the subject of fertilizing the soil. To point out the existing difference would only perplex the amateur in his operations in floriculture; indeed, it takes an experienced assayer and chemist to elucidate the subject thoroughly. The word manure is generally applied to what is taken from stables, whether horse or cow excrements, mixed with straw and other litter; such is not always the case. Manure, in gardening, is meant to convey the idea to enrich and fertilize the soil in the garden. Still it must be observed what is good for one kind of soil is not for another, therefore there is a great difference in manure. If the soil be a marl then the application of sand would constitute a manure to make it friable, that is, suitable to receive plants. There are other kinds that would make the soil useful, which none but a chemist can tell by analyzing it. Horse and cow manures are good stimulants for the growth of plants in common garden soil, but in no case should it be used unless one or two or three

years old, or your soil will be filled with grass and weeds. To manure a garden requires some judgment. To manure the same soil every season too heavily is nearly as bad as no manure at all, as some seeds will deteriorate more than others; for instance, the Rocket Larkspur never ought to be sown in the same bed two seasons in succession. It will frequently happen by over manuring the garden the soil becomes black, and many suppose the soil to be extremely rich, when it is the reverse; so much manure being laid in the soil as to make it so sterile that plants can not do well or even exist in it. When such is the case it will be necessary to use lime as a manure to counteract the *humic acid* contained in the soil, caused by the superfluous use of the stable manure. Manure from the stable should never be used with lime, as one destroys the effect of the other, nor until it has been regularly fermented.

Stable manure is required more plentifully for pot culture, as the frequent watering of the plants in pots will naturally wash the substance from the plants. The frequent watering of pot plants also makes it indispensable to shift the soil often; this is termed repotting, which is performed once or twice a year, and the best time to effect this is in spring and fall, and the best soil for that purpose is a maiden soil. This is a term used by gardeners, and can be obtained from the outskirts of cities and towns or old meadows, by taking off the turf, then dig three or four inches below; this will constitute virgin soil, and if inclined to clay add a small portion of sand. Fortunately, we have in this city plenty of this at hand. Some plants require a richer soil than others; when such is the case the addition of old cow manure will an-

swer. Different locations will make a difference in soil, also in growth of plants; and in potting plants, when you find the soil stiff and binding, always add sand to correct the fault. There are different soils used by gardeners, such as peat earth, a vegetable matter decayed, that can be passed through a sieve. Peat bog is such as is generally found in swamps. Sandy loam is a loam with a portion of sand in it, and is what is mostly used for general culture. Sandy soil is effected by adding more sand to the sandy loam. Vegetable mold is decayed vegetation and weeds collected in the garden, and thrown into a heap for two or three years. Garden mold or loam is such as does not contain any sand. Clay soil is not good unless you mix different manures to make it friable, and then not good for pot plants. Leaf mold is composed entirely of decayed leaves, and when mixed with sand is a most excellent soil for pot culture.

THE Carnonfa Tree, a species of the Palm, which flourishes without culture at Bahia, Rio Grande del Norte, Brazil, is of immense value. The roots possess properties similar to those of the Sarsaparilla; the trunk furnishes a superior fibre, as well as a flower similar to maize; the pulp of its fruit is very palatable; and the only nut, when roasted and pulverized, is a good substitute for coffee. The trunk when young yields wine, vinegar, a saccharine matter, and a species of gum resembling sago; the leaves produce a wax from which excellent candles are made, and the full-grown wood is adapted to the manufacture of musical instruments, drain pipes, water conduits, and other articles requiring wood of a close, compact fibre.



Rod and Gun.

BAIT FISHING FOR YOUNG SALMON ON OAKLAND LONG WHARF.

It would be difficult, if not impossible, to find any city in the world like San Francisco, having such choice and convenient fishing-grounds as our great city possesses, for the most noble and gamest of all fishes—the lordly salmon—albeit he is here, at this season of the year at least, generally only in his youth. And this location can be easily reached by a splendid ferry boat, plying every half hour, in an hour's time from the heart of the city. The Oakland Wharf commands a fine and extensive view of the magnificent bay, the city, islands, near and distant mountains, and the shipping, sailing vessels, steamers, fishing crafts, rowing boats, etc. The air is pure and bracing, and healthily impregnated with saline particles from the surrounding waters. It may therefore be properly termed a sanitarium, as well as a place of piscatorial recreation for our citizens, at least equal in fishing qualities to and easier of access than Lakes Merced, San Andreas, and Pilarcitos, which possess also some of these same silver-scaled fish, with a good sprinkling of Tahoe trout. To persons not pressed with any business, and having the time and leisure to wait patiently for a bite from these same grilse on the Long

Wharf, to be rewarded after a while by hooking one of these lively fellows, the time passes pleasantly enough; and if he should not be very fortunate in capturing more than two or three, or even less, in a morning's angling, the true disciple of old Izaak is pretty well satisfied, if not entirely content. If even he does not take any fish at all himself, he is sure to participate in the pleasure, amusement, and excitement created by seeing some others of the numerous anglers who frequent the locality, more fortunate than himself in bagging the silvery prizes. These fish are undoubtedly in goodly number in our harbor, the rod and line anglers and the market fishermen having averaged a take for these two months past of 100 grilse per day and night (many having been captured during the latter period when the moon was shining bright). If we had been favored with rain, it is considered by the most experienced fishermen, that a much larger number of these salmon would have run in from the ocean than there have.

It is universally admitted that the time they bite best is at high tide, when the water is almost at a standstill; likewise a little before that occurs, and for a little while after the waters are on the ebb. These fish, mostly in schools, seem to pass up at a rather rapid rate with the tide, linger around the wharves to feed chiefly at high water, and then

swim down, catching at baits and small fish with the ebb through all parts of the bay and its principal channels.

The mode of angling for them is with a long light rod (with or without a reel as may be desired), any small and good common line, to which is attached a strong single or double leader, five or six feet in length, and one or two medium sized hooks, one fixed, of course, to the end of the leader, and if two hooks are preferred to one, the second hook is fastened to the line about three or four feet above the last on a strand of about two feet. The baits used are the common mussel worm, the hook being run half way through its body, covering well the shank of the hook, leaving the tail to hang down about two inches, then on the end of the hook is placed a two-inch strip cut from the white belly of a smelt or herring, or a small sardine may be used in the same way. A moderately heavy sinker is attached to the leader about three feet from the bottom hook. The most common method is to angle with the last hook about six or seven feet from the surface of the water.

It is not necessary continually to hold the rod in hand, but it is quite as good a plan, and more easy and convenient, to fix the rod on the railing, which is easily effected by a nail driven into one of the posts; indeed, they can be found there already fixed in many of the posts.

The fish before swallowing the bait seem to nibble about it, and thus shake the rod several times before pulling violently at it, or going off sideways with the line; then it is time enough to take hold of the rod and play, and land your fish. In nine cases out of ten the salmon will be found to have entirely gorged the hook, although sometimes they may be suddenly snap-

ped with the hook but a short distance in the mouth or jaw.

These grilse average in weight, now, about a pound each, although several have been taken weighing from six to nine pounds.

They have been caught in quantity in our bay for these last three years, and from the numbers of young fish planted in our rivers by our efficient fish commissioners and by the United States breeding ponds on the McCloud River, the prospects for the future are most encouraging, both for the professional as well as the amateur fishermen.

Occasionally, but very rarely, a "salmon-trout" is captured on the wharf. This is a species of the salmon family, with a longer body, blunter nose, and much squarer tail than the California or Sacramento salmon. Brook trout (*salmo iridea*) have also been (but very seldom) taken in the bay.

Bait can be purchased at the bait-house, a few hundred yards from the Point, but only on the condition of hiring there a rod or rods. Persons who bring their own rods had better bring their own bait with them. The proprietor will be found an accommodating person in every other respect, and will cheerfully give any directions required in regard to angling.

SOMETHING ABOUT JELLY-FISHES.

The loiterer by the sea-side on the sands near the Cliff House or elsewhere on the ocean shore, may have noticed in his rambles certain gelatinous substances left by the retreating tide. An interest excited by so strange a sight may have prompted a closer examination, and yet noticing nothing definite or tangible in the structure of these shapeless bodies, a desire has been really awakened to know something about

them. We will try to satisfy this curiosity by giving a brief account of these jelly-fishes; for these shapeless lumps of jelly seen stranded on our beaches are really animals, assuming the most graceful and symmetrical forms in water.

The jelly-fishes, or medusæ, have long excited the attention of naturalists from their singular structure and the wonderful changes occurring during their growth.

While in the higher expressions of animal life the anatomist may puzzle over the intricacies of a complicated organization in the jelly-fishes, he is at first more perplexed to find anything like organization in their parts, though they are really highly organized compared with animals still lower in the scale. So transparent are they, that one can sometimes hardly detect their presence in the water, and so largely does the sea water enter into their composition, that certain kinds of them in other parts of the world, when dried, lose ninety-nine one-hundredths of their own weight.

Peron and Leswer, two distinguished French naturalists, who, in the early part of this century, made a voyage round the globe, thus summed up the results of their combined observations on these animals:

"The substance of a medusa is wholly resolved, by a kind of instantaneous fusion, into a fluid analogous to sea water; and yet the most important functions of life are effected in bodies that seem to be nothing more, as it were, than coagulated water. The multiplication of these animals is prodigious, and we know nothing certain respecting their mode of generation. They may acquire dimensions of many feet in diameter, and weigh, occasionally, from fifty to sixty pounds; and

their system of nutrition escapes us. They execute the most rapid and continued motions; and the details of their muscular system are unknown.

"Their secretions seem to be extremely abundant; but we perceive nothing satisfactory as to their origin. They have a kind of very active respiration; its real seat is a mystery. They seem extremely feeble, but fishes of larger size are daily their prey. One would imagine their stomachs incapable of any kind of action on these latter animals; in a few moments they are digested. Many of them contain internally considerable quantities of air, but whether they imbibe it from the atmosphere, extract it from the ocean, or secrete it within their bodies, we are equally ignorant. A great number of these medusæ are phosphorescent, and glare amid the gloom of night like globes of fire; yet the nature, the principle, and the agents of this wonderful property remain to be discovered. Some sting and inflame the hand that touches them; but the cause of this power is equally unknown."

Professor Richard Owen quotes these "lively paradoxes" to show the progress made since then in clearing up many points that were obscure at their time, and to show that even the skillful naturalist, with abundant material at hand, may plod on with uncertainty unless aided by the higher powers of the microscope. Recent works published by Professors Agassiz and Clark, and Mr. A. Agassiz, have detailed very fully the anatomy and classification of one or two of our native species.

The jelly-fishes of our coast are represented by numerous globular and disk-like animals of a gelatinous texture, more or less transparent, having certain appendages consisting either of longitudinal bands of vibrating fringes,

as in one order; or, as in another order, having appendages, surrounding the mouth, and others, thread-like, hanging from the margin of the disk. The parts most conspicuous within the body are the ovaries, or egg sacks, the stomach, and certain tubes running from the stomach to the periphery of the body.

These animals are apparently radiated in their structure; at all events, it is difficult in certain groups to distinguish a right and left side, and for this reason they are called radiated animals, from one of the three classes of the branch *Radiata*.

The jelly-fishes of our coast are common in our harbors and inlets, and in our great bay, where the water with the tides is fresh and pure from the ocean. A very ready and convenient way to collect them is to moor your boat on the shady side of a wharf where the reflected rays of the sun are avoided, and, as the tide sweeps gently past, to dip them as they are borne along by the current. Some little practice is necessary to discern the smaller kinds, for many species are very minute, and others, though of good size, are nevertheless hard to distinguish on account of their extreme transparency. They may be dipped from the water with a tin dipper, though a wide-mouthed glass jar is better for the purpose. As they are secured, they may be poured into a wooden bucket for assortment and examination at home; or, better, a large glass jar carried on purpose to hold them, may be filled at once, as too frequent changes destroy them.

Some species are very hardy, and may be kept alive for weeks, while others live only a few hours, gradually diminishing in size till they appear to melt away in the water.

Words fail in describing the beauty

and singularity of some of these jelly-fishes. Their movements, colors, and transparency are most interesting and wonderful.

FACTS AND THEORIES ABOUT SALMON.

There has been a great amount of controversy, oral and written, as to the birth, breeding, and growth of this highly valued, important, and well known fish; although there is much yet, no doubt, to be discovered concerning its growth from the parr to the smolt and grilse stage, all the kind of food it eats, how long it remains in salt water, and whether it makes one, two, or more voyages a year to sea. Then its rate of growth has been the subject of dispute. Much regarding many things relating to the salmon depends upon the country, climate, rivers, bays, and localities where the different species are found. The spawn deposited by the parent fish in our Sacramento, San Joaquin, and other rivers is found chiefly in the months of January and February, lying there for about three months, when it quickens into life. The young fry are, of course, very helpless, when they carry about them as a provision for food a portion of the egg. About two or three weeks after they are hatched they are half an inch in size. About fifty days are required before they become a perfect fish about two inches long. After the existence of two years the parr is changed into a smolt. A parr of one year old is about six inches long. A smolt two years old has the length of eight inches at least. The young fish continue to grow for a little longer than two years before the whole number make the change from parr to smolt, and seek the salt water. All the two-year olds now in the Bay of San Francisco probably have come

down the rivers into it, and it being chiefly salt water they may disport in it most likely for three or four months before they finally go out into the ocean for more food, and greater space to move about and greatly thrive in. The parrs, the younger fish, are also in the bay, which is partly fresh water, especially in the spring, from the thawing of the mountain snows and the rains, and may either go to sea or return up to the widest portions of the Sacramento and San Joaquin rivers, and much farther up. The majority of grilse or young salmon now in the bay are smolts of two years old, grilse of three, and a few older and much larger young salmon of probably from four to six years old. For numbers of the smolts and grilse it may be possible that the brackish waters of our harbor may be as agreeable and good for them as the main ocean, and that these may not go out to sea at all. We are not yet certain whether salmon make two visits annually to the sea or not; likewise, whether it is probable that a smolt remains in the salt water for nearly a year before it becomes a grilse. It seems certain that large salmon and grilse, and even smolts, become much deteriorated when long in the rivers, and that they make the most rapid growth and fullness in salt water.

Mr. Jas. G. Bertram, in his "Harvest of the Sea," states that "The most remarkable phase in the life of the salmon is its extraordinary instinct for change. After the parr has become a smolt, it is found that the desire to visit the sea or estuaries is so intense, especially in pond-bred fish, as to cause them to leap from their place of confinement, in the hope of attaining at once their salt-water goal; and, of course, the instinct of river-bred fish is equally strong on this point—they all

rush to the sea at their proper season. There are various opinions as to the cause of the migratory instinct in the salmon. Some people say it finds in the sea those rich feeding-grounds which enable it to add so rapidly to its weight. It is quite certain that the fish attains its prime condition while it is in the salt water; those caught in the estuaries by means of stake or bay nets being richer in quality, and esteemed far before the river fish. The moment the salmon enters the fresh water it begins to decrease in weight, and falls from its high condition." It seems likely to the writer, that the parrs and smolts come into our bay from the breeding places in our rivers to feed for a time there, and that the grilse and all the older fish come into our harbor from the sea, where, disporting a while, and having found the mouths of our streams, they ascend them for the purpose of spawning.

During the whole length of the pilgrimage of the parrs and smolts they pay a tribute to its numerous enemies—the seals and the larger fish—in gradual decimation. They are attacked at every point of advantage; at one place they are taken prisoners by the hundred in some well-contrived net; at another, picked off singly by our eager and persevering rod anglers. But the giant and fierce battle which this infantile tribe has to fight is at the points near the Cliff House, and where the salt water begins to mingle with our rivers, where are assembled hosts of sea-lions and other greedy monsters of the ocean and bays, of all shapes and sizes, from the porpoise and seal down to pelicans, divers, cormorants, and some smaller creatures, who dart with inconceivable rapidity upon the defenseless shoals or schools, and play havoc with their numbers.

Many naturalists dispute most lustily the assertion that the smolt returns to the parental waters as a grilse the same year that it visits the sea. It has been pretty well proved, however, that the grilse may have been the young smolt of the same year. A most remarkable fact in the history of grilse is, that we kill them in thousands before they have an opportunity of perpetuating their kind; indeed, in some rivers and in our own bay may not the annual slaughter of these young salmon be so great as to palpably affect "the takes" of the big fish. But we trust that the annual planting of the United States Commissioners at the McCloud River, of a million or two of young fish in the large streams, may go far to make up for this loss. It has been ascertained with certainty by marking certain four-pound grilses that they had grown into beautiful salmon, varying from nine to fourteen pounds weight, after their journey to the sea and back again. The experiment was repeated for several years, and on the whole the results were found the same, the majority returning in about eight weeks, and the grilse invariably returned salmon.

The salmon, like all other fish, is faithful to its old haunts; and it is known, in cases where more than one salmon stream falls into the same bay, that the fish of one stream will not enter another, and where the stream has various tributaries suitable for breeding purposes, the fish breeding in a particular tributary invariably return to it.

WHAT SALMON FEED ON.

I was astonished on hearing from Sir John Richardson, Bart., that some of your readers were still in doubt as to what salmon feed on. After an experience of fifty years, not in theory, but

in real practice, I have seen a deal more than many. It is upwards of forty years since I had a supply of salmon and grilse from the Doon, and, on opening the stomachs, found large quantities of young herring. Indeed, I have counted in one grilse of, say 8 pounds or 9 pounds weight, half a pound of herring and herring bones. From Goswick, on the Tweed, I have seen herrings fully eight inches long—in some instances two and three—both in grilse and trout. On the sea coast on the Forth we often have found six to ten sand eels in one trout, and as we go farther up the first, large quantities of shrimps and sand jumpers—a small insect-looking creature, like a young shrimp, that jumps about the seaweed.* On the river we have found large trout with spirleys and garvies, or sprats, in them, and at times quantities of white-bait or soil of the herring. Above the tide-way you find the stomach gorged with a fine soft weed that grows on the bottom, also occasionally a few small soft mussels, the young of the pearl mussel, and a small shell-fish like a periwinkle. From Loch Tay we have had salmon with sea lice on them, and in their stomachs young char and yellow trout. Once, on looking into a salmon-net pocket, we saw the salmon devouring the young soil by the thousand, even although in duration vile. I have seen salmon kelts in April lie in a pool watching the fry, descending and gobbling them up by the dozen as fast as they came down. Our laws are all against nature, and by far too many adult fish get up to the spawning grounds, as is shown by the large quantities of dead fish found. How can it be expected otherwise? If twenty fish get located in a pool for a few weeks or months, and no food is to

* This animal is found in Lake Merced.—Ed.

be got to keep them alive, they just run up and devour the ova laid there by them or their neighbors; when all is eaten up they begin to devour one another. When spring arrives they are starving, and they then commence on the fry as they descend to the sea, as I have taken kelts in winter full of ova and in spring full of fry. They also devour large quantities of young smelt and eels. Trout are more voracious than salmon, but the nets being so large in the mesh, fewer can be caught to see them.—J. A. There has now, we think, been a sufficient accumulation of convincing testimony as to the voracity of the salmon, whether in salt or fresh water. We add one fact from our own experience: Fishing in the Galway River, some years ago, we found it impossible to get a rise out of the fish, though there were a large number in the river, and we tried every fly we could think of—large, small, sober, and gaudy. While looking disconsolately on, we suddenly saw one or two sprays of small fry dash from the water, as may be observed when a pike or big trout rushes into a shoal of bleak. We took the hint, hastened home, got a spinning rod and a big Allie minnow, and at the very second cast hooked a heavy fish, which came at the bait like a bull-dog. With this, we think, we may fairly close this part of the subject, as no one is likely to assert that salmon have not been known to feed in the rivers or to have anything in their stomachs, etc. So much having been distinctly proved, who can doubt that kelts devour huge quantities of smolts, as has been asserted over and over again, or that their living in a river beyond a certain period is anything but a benefit, and that in the end of April and May, when the smolts congregate, they are not worth their

keep? The decline of grilse and of the fishing in many good trout river tallies so exactly with the preservation of kelts as in itself to be a cause of suspicion.—*Cor. London Field.*

PAINTINGS OF DOLLY VARDEN AND BROOK TROUT.

We lately gratified ourselves by visiting the studio of S. M. Brookes, our great fish painter. It is hardly necessary for us to pass any encomiums upon his works, but will merely say that the likenesses of the famous Dolly Varden and some of our brook trout were as fine and satisfactory as those of any other of the numerous fish he has ever transferred so life-like to his easel. The Dolly Vardens are spotted yellow and red, yellow on the upper sides, and red on the lower. They are not so brilliant in coloring as the Eastern or European trout, but more so than our common ones. Their heads are more round in form than their Eastern brethren, though with the same form of body. These handsome fish have been taken by the artist in different positions: one just under the surface of the water apparently about to take a large red artificial fly, another about to leap out of the water, and a third swimming leisurely along some distance under the surface. They are found only in glacier water in the northern part of California near Mount Shasta; and it is said also in Alaska. At some periods of the year they will probably take the fly, but generally the salmon roe is found to be the most killing bait for them. The artist has depicted the texture of their bodies with wonderful fidelity. Their skins appear as oily and slippery as Nature herself has made them. One of the brook trout (*salmo iridea*) is a noble fellow, with his vivid crimson stripes

through the middle of his body and on a portion of his gills. His weight is five pounds. Altogether, all these speckled and striped beauties are calculated to make the sportsman's hand tingle to handle them with a rod and line, and his mouth to water to partake of their delicious flesh when served up at table.

Selected Articles.

THE FLOWERS' CHOICE.

I heard the flowers on a day
 Confess in turn the fate which they
 Would deem more blessed.
 The timid Violet whispered: "I
 Would choose to live—I dare not die!
 Let me be pressed!"

The Moss-rose raised its dainty head,
 And blushing: "Ah! what bliss," it said,
 "For aye to rest
 On some fair maiden's bosom soft,
 And, with her loving fingers, oft
 To be caressed!"

The gaudy Peony declared,
 As arrogant around it stared:
 "To be admired
 Is all I ask! And 'tis my due;
 My loveliness leaves nothing new
 To be desired!"

The modest Daisy said: "I know,
 Alas! I am not fit to grow
 'Mid such as ye;
 Yet God had given to each a place
 To occupy a little space,
 Though mean he be.

"Content with my estate, I pray
 Where He has placed me, there to stay
 Till life is done;
 Enjoying warmth, enjoying light,
 Until my everlasting night
 Obscure the sun!"

And last the Lily, fair and mild,
 Spoke, sighing: "When a little child
 Is snatched by Death,
 I'd love to nestle pure and bright
 Within its hands so cold and white;
 Or, in a wreath

"I'd twine me o'er the coffin's lid,
 Till from the mother's sight 'twas hid;
 And I would make

The hideousness of Death appear
 Less foully hideous—almost fair,
 For her poor sake!"

The Lily spoke; and for a space
 The dewy tears were shed apace!
 And all confessed,
 Who heard her gentle words, that she,
 So full of love and sympathy,
 Had chosen best!

DWARFING THE VINE—THE PHYLLOXERA.

The insect called the phylloxera has ruined a very large portion of the Grape vines in France, and caused serious alarm for the vine interest of the whole country. This fact is naturally creating among our own vine-growers some uneasiness and inquiry as to the probable cause of the spread of that insect in France at this particular time, and whether the same causes that have produced or caused it to spread and become so destructive there exist here, and are likely to operate in the same manner. To prosecute this inquiry intelligently and satisfactorily, we ought in the first place to ascertain the mode of planting and cultivating the vine in France, and if there is anything in the one or the other likely to weaken the vine and render it less able to resist the attack of disease, and particularly of these little insects which just now seem to be its special enemy. That the climate of France is favorable to the growth and fruitfulness and strength of the vine there can be no doubt, for no other country can show a more successful history of the vine for so long a period. The soil, too, must originally have been most favorable to the prosperity of the vine, for it is just such as the Grape flourishes in in every other country, and just such as the wild vines seek and seem to do well in. The cause can, therefore, hardly be found

in, or attributed to, the climate or soil, and must be looked for in some other direction, and probably in the after management and treatment. Let us then see how the vineyards of France are planted. In Anjou, in France, the subject of the distance apart to plant vines in order to obtain from them the most wine was a matter of careful experiment for twenty-six years. Some vineyards were planted, the vines sixteen feet apart, and others less, down to one foot, and the product of each of these experimental vineyards was carefully kept separate each year for a term of years and weighed, to determine at what distance apart the vines on a given quantity of land would give the greatest result. The vines of course were pruned in each vineyard under experiment to adapt them to the distance apart. That is, those planted at a great distance were allowed to spread out into much larger trees or bushes than those eight feet apart, and those eight feet apart were allowed to grow much larger and more naturally than those four feet apart, and those one foot apart were of course cut back very closely, making a mere dwarf of each vine. However, as the growth and strength of the vine was not the subject under investigation, nor the fruitfulness of each vine, but the quantity of wine that could be produced to the acre of land, very little attention was paid to the comparative health of the vines on the several vineyards. These experiments finally resulted in establishing the fact that with vines one foot apart, more wine could be produced to the acre of land than with them at any greater distance. Similar experiments with similar results were made at Weisbaden and on the Rhine, and in many other districts both in France and Germany. As a result of this fact,

so carefully and certainly established, the people in these countries adopted close planting for all their vineyards. Throughout the famous Burgundy district the vines are all planted but one foot apart, and cultivated accordingly—that is, pruned back till they are no longer natural vines growing in a natural and luxuriant manner, but mere dwarfs, sickly and weak representatives of their species.

Of course, in dwarfing the top of the vine the root must also be dwarfed in proportion. The flow of sap in a vine or tree thus dwarfed and stunted must necessarily be weak and sickly, and the power of resistance to diseases, especially to the attack of insects that live on the sap, must be proportionally reduced.

It is true that eight such dwarfed vines, while kept free of disease and destroying insects, will produce more fruit than one vine occupying the same space of ground, but when subjected to a severe drought or attacked by disease as the mildew, or by insects as the phylloxera, is it reasonable to suppose they will have the same power of life and ability of resistance? Experience proves the contrary, and so the vines of Dijon, Weisbaden, of the Rhine, of Hungary, and all the famous districts of European countries, are being destroyed by the little insect that penetrates their roots and lives upon their sap.

In California, it is true, we have not carried the matter of close planting of the vines to the extent that they have in Europe, because land here has been plenty and cheap, but we have adopted the same system of close pruning and dwarfing of the vines. We have given the vines plenty of room to spread their roots in, but we have, by cutting back the top close to the main stem, each

year checked the growth of these roots so that they occupy but a few feet of the soil allotted to them, and draw their sustenance only from the limited circumference of the land which they occupy.

Our vines are stunted and weakened, and consequently rendered less liable to resist the attack of disease or insects, and though we have but comparatively a few to the acre, they are exposed to the attack of the phylloxera almost equally with the closer planted vines of Europe.

The soil of California is not usually very strong and full of recuperative powers. The great space between our vines has not been exhausted, but by lying idle and comparatively at rest has been growing richer each year. To obtain the advantage of this accumulation of fertility we have but to let the roots of our vines extend themselves into it. This they will do if we will adopt a system of pruning that will allow the canes greater length, as the roots will extend in proportion as the tops are allowed to grow. If in connection with the adoption of a longer system of pruning we give the vines some well-rotted manure close around the main stem, it will assist them materially in gaining the natural growth and vigor we have by our treatment heretofore deprived them of. The change should not be too rapid from short to long pruning, but where two buds have heretofore been left on the bearing cane, let four be left the first year and but one bud additional be left each subsequent year. This will give the roots a chance to grow in proportion to the top, and in a few years the vine will become much stronger and more vigorous and more able to battle with the great present enemy, the phylloxera.—*Bulletin*.

NEW PLANTS.

NEW CORNELIAN CHERRY.—Under the simple and effective name of "*Cornus mascula aurea elegantissima*, Jacobi et Caroli Leei," an advertisement in the *Gardener's Chronicle* tells us that "This elegant and lovely hardy shrub was raised from seed in our Isleworth Nursery, and has been proved to be perfectly constant in its beautiful variegation. A broad margin of pure gold surrounding a bright green centre is of itself a sufficient attraction, but when in July the tips of the leaves become suffused with the brightest carmine, it is impossible to give an idea of the beauty and elegance of the plant, which will bear a favorable comparison with the best variegated stove or greenhouse exotics. Suffice it to say, that it has been seen and admired by many amateurs and nurserymen, and has been awarded a First-class Certificate at South Kensington. The habit of the plant is semi-pendulous and very graceful."

A CREAM-COLORED CEDAR.—Describing "*Juniperus Virginiana elegans*," Messrs. Lee say: "This very elegant variety of the Red Cedar was raised from seed in our own grounds in 1869. It is scarcely necessary to remark upon the hardness of this plant, but it is due to its character to state that the elegant cream-colored variegation with which the whole plant is suffused is perfectly constant, and has never been injured by frost or burned in the least degree by the hottest sunshine, although fully exposed in the open air. The plant is of neat and free growth, and received the honor of a First-class Certificate from the Floral Committee at South Kensington, in July, 1875."

AMPELOPSIS JAPONICA.—This is a Virginian creeper that does not creep, and

belongs more properly to the class of furnishing plants than climbers. Its growth is that of a diffuse wiry bush, and at any time while it is in leaf it is well adapted for enriching with bright foliage large vases on terraces and in entrance halls and conservatories. At the present time it is in brilliant color, the prevailing tone being fiery orange-red, shading one way to yellow and another way to purple. It is a grand plant for the front line of the shrubbery, and might even be used in large beds and borders, for the knife would keep it within bounds, and it does not run as other species of *Ampelopsis* do.

SAXIFRAGA JAPONICA.—There are many handsome autumn flowers, but few excel the Japanese Saxifrage in beauty and grace. It succeeds best as a pot plant, left undisturbed for two years. It has large, glossy, dark green leaves which remind one of those of *Dondia epipactis*, out of which spring many tall and branching stems of feathery white flowers. The four upper petals are short and nearly even in length, but the lower one is lengthened out into a tail-like appendage, which gives the flowers the appearance of a bird of paradise in full flight.

DIANELLA ASPERA.—By the following from the *Gardener's Chronicle* this plant must be very ornamental: "One of the finest blue-berried plants with which we are acquainted is '*Dianella aspera*,' and a good example we have recently seen in the temperate-house at Kew. The panicles are very compact, in one case nine inches long with forty-eight berries, closely arranged on short branches. The berries equal in size a small '*Solanum Capsicastrum*.' Several of this genus would be highly ornamental in fruit, but for their excessively lax habit."

SWEET-SCENTED RHODODENDRONS. — A

correspondent recently referred to the house culture of *Rhododendrons*—an excellent idea. The new sweet-scented class of hybrids are worth attending to in this connection. The "Countess of Derby" is the most beautiful of all half-hardy kinds, being of a compact, bushy habit, and bearing on even the smallest plants trusses of large, pure white deliciously fragrant flowers, a single flower being sufficient to give a delightful scent to a bouquet. A number of plants were exhibited at Manchester last year, and were awarded a First-class Certificate of Merit.

DRAINAGE FOR POT PLANTS.

Although drainage may seem a trifling matter for consideration, it is one, says the *Gardener*, which lies at the foundation of all successful plant culture in pots. If not properly provided for, the lack of it will thwart the most careful and correct attention to all other points of culture. It is not so much the quantity of crocks (pieces of broken flower-pots) used, as the way they are placed in the pot, that determines their success. A pot half full of crocks may not be so well drained as one with crocks to the depth of only an inch. In well-ordered gardens where pot plants are grown, there should be three or four different sizes of crocks—say inch, half-inch, and quarter-inch pieces. These pieces of crocks should be as clean as the pots themselves, and free from dust.

Speaking generally, the largest pieces should occupy three-fourths of the drainage space, the remaining fourth being filled with pieces of smaller size. The work is finished by putting some of the smallest on the top and placing over all a layer of dry moss. Fourteen to sixteen-inch pots require three or

four inches depth of drainage, while eight to eleven-inch pots require one and a-half to two inches. The concave side of the crock should be placed down; if put the other way they often pack too closely to carry off the superfluous water.

To prove whether this pot-drainage is or is not a trifling part of plant culture, take two Azaleas, Camellias, or Geraniums; drain the pot for one of them in the careful manner we have described, and drain the other by tumbling into the bottom of the pot a few large and dirty pieces of crock or brick. Subject both to the same treatment otherwise, and then observe the different results.

We were recently engaged in shifting some Azaleas, the pots of which were properly drained two years since. On turning them out, the crocks fell from the bottom of the balls as clean as on the day they were put in. Their roots were in perfect health. Others there were put into the pots of which a few large pieces of crock had been carelessly pitched. A soured mass remained at the bottom, which stuck in the pot, and in which no roots could live.

THE RESURRECTION FLOWER.

Dr. Isaiah Deck, the celebrated geologist, chemist, and mineralogist, of New York, received an invitation from the Egyptian Government to visit the head waters of the Nile, to make an inspection of some copper mines in the vicinity of the cataract of that river. The result of his examination proved highly satisfactory to the Government; but while Dr. Deck was making his researches, one of the Arabs in his employ fell ill of the intermittent fever. The doctor treated him with the usual remedies of the European pharmaco-

poeia, and the disease readily yielded. The Arab, in the plenitude of his gratefulness, gave the doctor one of those strange flowers denominated the Resurrection Plant, and committed the solecism of saying that so long as the doctor kept it in his possession he would retain health (having just had the ague himself). The history of the flower the Arab gave was, that it had been found beneath the folds of the shroud upon the breast of an Egyptian princess, in the Catacombs. The doctor was somewhat skeptical about the identity of her royal Coptic highness, but the flower he recognized as being of the tribe of a few rare plants possessed by several European *savans*, and of which flowers Baron Humboldt had some two or three specimens.

The one owned by Doctor Deck is, in appearance, a flat, round, brown substance, resembling a large wooden button, or the cup of a great burr acorn, with a dry stem of some three or four inches in length. Upon being moistened and placed upright in a wine glass, this marvelous flower will gradually expand, until, in the course of fifteen minutes, it will exhibit a graceful fringe of corolla, of the richest and most delicate purple color, and forming by its expansion a beautiful Dahlia-like blossom, smooth as a Camellia or a sea-shell. After gradually expanding, it will retain its unfolded state for a period of about half an hour, when closing the purple curtains of its regal couch, it lies down in its beauty to dreamless sleep.

This rare and lovely plant has bloomed, since it has been in the possession of Doctor Deck, over nine hundred times.

The theory by which he accounts for this remarkable phenomenon is, that this is a plant that Nature designed for

the dry sands of the great desert; that this flower is the pod or seed vessel, and as there is no rain in Egypt, this dry bulb would drift about in the arid sands any length of time without expanding, but that whenever it reached an oasis, where there was moisture and soil to sustain the plant, it would unfold itself, deposit its seed, which in turn would germinate, and thus produce the deathless Flower of the Desert. [This same plant is found in Mexico.—Ed.]

SINGULAR PROPERTY OF THE TOMATO.

The difficulty experienced by our fruit growers, and especially by those who devote themselves to Orange culture, in destroying the many insect pests which invade them, renders the following, which we take from *The Prairie Farmer*, of great interest, and well worthy of a trial:

I planted a Peach orchard, writes M. Siroy, of the Society of Horticulture, and the trees grew well and strongly. They had but just commenced to bud when they were invaded by the curculio (*pulgon*), which insects were followed, as frequently happens, by ants. Having cut some Tomatoes, the idea occurred to me that, by placing some of the leaves around the trunks and branches of the Peach trees, I might preserve them from the rays of the sun, which were very powerful. My surprise was great, upon the following day, to find the trees entirely free from their enemies, not one remaining, except here and there where a curled leaf prevented the Tomato from exercising its influence. These leaves I carefully unrolled, placed upon them fresh ones from the Tomato vine, with the result of banishing the last insect and enabling the trees to grow with luxuriance.

Wishing to carry still further my experiment, I steeped in water some fresh leaves of the Tomato, and sprinkled with this infusion other plants, Roses and Oranges. In two days these were also free from the innumerable insects which covered them, and I felt sure that had I used the same means with my Melon patch I should have met with the same result. I therefore deem it a duty I owe to the Society of Horticulture to make known this singular and useful property of the Tomato leaves, which I discovered by the merest accident.

Editorial Portfolio.

OUR FRONTISPIECE.

All our readers, will, no doubt, admit that our finely and correctly colored chromo in this number of our work is a beautiful and splendid one. It consists of eight favorite and much cultivated annual flowers. First, there is the Ten-weeks Stock (*Mathiola annua*) which, according to the highly reputed judgment of that zealous and extensive cultivator, James Vick, presents nearly or quite all the requisites of a perfect flowering plant—good habit, fine foliage, beautiful flowers of almost every delicate and desirable tint, early flowering, and abundance of blossoms. Second, the Phlox Drummondii is on the upper left-hand side of the picture. No annual excels this for a brilliant and constant display. Indeed, if confined to one plant for the decoration of the lawn or border, this lovely flower in all its various tints would be our choice over, or at any rate equal to, any annual or perennial with which we are acquainted. The colors range from the purest white to the deepest crimson, including purple and yellow and striped, the clear eye of the Phlox be-

ing peculiarly marked. Third, Double Portulaca, a popular, hardy, creeping annual, each strong plant covering a space about a foot in diameter, with salver-shaped flowers, of every color imaginable, except blue and striped, and these colors of the most intense brightness. It delights in a warm sun and a sandy soil, and drought and heat have but little effect on it. Fourth, the Balsam (*Impatiens*). Balsamica, like the Aster, is one of the most beautiful and popular of our annuals. Like that flower, too, it is an old favorite, and so much improved during the last quarter of century that it scarcely bears a resemblance to the old flower. It was the "Lady's Slipper" of other days, which, however, was only single, and very inferior to the double, rose-like flower of to-day. It requires here a careful nursing and protection to secure good and fine plants. The Extra Dwarf Balsams grow only about six inches in height, while the tall varieties often reach nearly three feet in a rich soil. Fifth, Nemophila. These are pretty, delicate, hardy annuals, throwing up their slender flower stems a few inches. The leaves are very pretty in form, and of a delicate, lively green, and, if the plants are grown in masses, have a mossy appearance. The flowers are mainly blue and white, and of the form shown in the chromo. They are native Americans, and we have some delightful specimens on our own coast. They require rather moist locations, as in the neighborhood of the Big Trees, where there are acres of them, beautifying the waste lands. Sixth, Japan Cockscomb (*Celosia*). These are interesting and singular annuals, and when well grown, from seed of good quality, never fail to please the grower, and attract the attention of his friends. There are two desirable forms of the Celosia

—the Cockscomb and the Feathery—the former being the most curious and far the most popular. Mr. Vick has a Japan Cockscomb, which far excels every other variety in the brilliancy of its color and the beauty of its comb. Seventh, the Pansy (*Viola tricolor*), the little Heartsease of Europe. We have it wild here, but very simple and plain in its character. The Pansy in its perfection is deservedly a very popular flower with both florists and amateurs, and blooming nearly all the year with us. It requires to be a little shaded, and to be furnished with a good supply of water. It is so well known that it does not require further description. Eighth, Striped Petunia. This is now both double and single, of all colors, and of good size. It embraces three distinct classes. One of them is the grandiflora, in which class we have a Fringed Petunia, new and unique. The third class is the small-flowered varieties. They all make a brilliant bed. The chromo shows one of the small-flowered varieties of natural size, and a double flower much reduced.

WORK FOR THE MONTH.

Springtime will soon be upon us, and the rainy season will be drawing to a close.

The present season, at least the early portion of it, for want of rain, has not been so favorable for the planting of trees and shrubs, and for out-door improvements in the horticultural line as last season and some seasons previous to it. Farmers have not had the usual favorable time for getting in their seeds, and from all accounts the fields and the gardens do not look very well. This condition is rather discouraging for all who have a direct or indirect interest in the welfare of California,

and has not encouraged or warranted quite so much attention to the improvements and adornments of either city or country homes. We are sorry to say from these, and perhaps some other causes, that the planting of trees, and shrubs, and flowers, for ornament has not been carried on upon so extensive a scale as would have otherwise taken place. Our people seem to move slowly, at any rate in all enterprises not calculated to bring immediate returns, or, in other and plainer words, the "all mighty dollar."

There is yet time to plant many trees. The rains, although so late, will justify it. They can be obtained now cheaply, and our nurserymen have plenty of them. Those who desire to plant during the latter part of this month (February), March, and April, should at all events take the precaution of mulching, unless water can be had for irrigation during the late spring time and summer.

We call attention again to the various trees, shrubs, etc., mentioned in our article on work last month, all of which are well adapted to our climate. Under all circumstances we would insist upon planting young trees instead of old ones; in three years from this time, the difference in size between these young and older trees will hardly be noticed.

In transplanting trees, we would call attention to the condition in which the roots of them should be to insure their growing. Nurserymen understand all this, but many of our farmers and amateur gardeners do not. The general rule is, that evergreen trees and shrubs should be planted with the ball of earth in which they have grown, while a deciduous tree or shrub (*i. e.* trees and shrubs which shed their leaves in autumn, as the Apple, Elm, Maple, etc.),

can be safely transplanted without having any earth attached to the roots. An evergreen tree, therefore, may be transplanted at any time, provided that all the earth penetrated by its roots is removed with it. But inasmuch as this is not easily accomplished, as it would require too much arduous labor to do it, and as some soil would not adhere well to the roots, particularly in summer time, the most favorable time for transplanting is during the early winter season, when most of the evergreen trees are at rest, and new fibres may be formed during the latter part of our rainy season. If evergreens, therefore, are transplanted early in the rainy season, a comparatively small amount of soil attached to their roots will make the removal safe. Nevertheless, there are some evergreens, such as the Eucalyptus (Gum tree) and the Acacia, which are not apt to grow and do well if any of their roots are disturbed by the removal; and our nurserymen, therefore, are in the habit of cultivating them in pots or boxes, which is really the only safe, and certainly the best method. The practice of raising Eucalypti and Acacias in pots or boxes is the only correct one, provided they are shifted into larger pots or boxes when the size of the tree and the condition of the roots require it. The Cypress, Pine, Juniper, and other coniferous trees, can suffer the loss of some small roots in transplanting, and, if very young, they may be transplanted with safety into the open ground without any earth around their roots; but the Eucalyptus and Acacia will perish unless they are protected from the sun for some days.

This is the proper time for sowing seeds of all kinds of trees and shrubs. They should be sown in pots or boxes covered with glass, and placed in a warm situation. Hardly any evergreen

tree or shrub seed will germinate in the open air in this climate.

In the vegetable garden no time should now be lost to sow all kinds of vegetable seeds which are desirable. The present time is also favorable to the planting of Asparagus roots, Rhubarb, Horseradish, etc. If a few plants of early Cabbage can be procured, they should be planted in freshly prepared soil. Asparagus and Rhubarb beds require a careful overhauling. They are about to make their appearance.

Planting of spring bulbs is still in order. We have also planted some Gladiolus for early flowering. Look after the Pæonies and Lilies, which are now beginning to show their foliage; their young and tender shoots are apt to be broken off by inexperienced or careless hands. The place where they are planted should always be marked by a proper stake or label.

Many plants of the greenhouse will soon show rapid growth and development; examine them, and if the roots are spreading around the outside of the ball of earth in which they grow, it is a strong indication of the necessity for shifting them in larger pots.

If the weather be warm and pleasant, all plants will require more water than they have had during the winter, and frequent airing.

HORTICULTURAL PUBLICATIONS RECEIVED.

Vick's Flower and Vegetable Garden, Rochester, New York. This splendid and interesting work is highly embellished with many beautifully drawn and colored chromos and handsome wood-cuts. The reading matter is varied and very instructive on all subjects and particulars relating to flower and vegetable cultivation. It contains a

full and attractive description of Mr. Vick's flower farms where his seeds are raised and double flowers formed by fertilization, general flower culture, selection of seeds, soil and its preparation, sowing seeds, causes of failure, hot-beds and cold-frames, transplanting, disappointed cultivators, the lawn and garden, making lawns and walks, planting and ornamenting the lawn, forms of beds, ribbon beds, perennial garden, bulb garden, garden adornments, rockeries, balcony gardens, plants for balconies, window boxes, and bedding, etc.; also instructions for the winter garden, the soil and water, the conservatory, Wardian cases and ferneries, plants for house culture, insect enemies to house plants, cold pits, floral decorations, making floral designs for the church, house, table, bouquet making, bouquet and trimming green, button-hole flowers, water gardening, classification and names of flowers, botanical glossary, annuals, climbers, everlastings, ornamental grasses, perennials, greenhouse, tender bulbs and tubers, hardy plants, bulbs, etc., Holland bulbs, hardy climbers, etc. Every one should forward 50 cents for this valuable work.

Vegetable and Flower Garden, and Catalogue of Fruit and Ornamental Trees, Shrubs, Bulbs, Plants, etc., 1876-77. R. J. Trumbull, Seed Warehouse, Nos. 419 and 421 Sansome Street, San Francisco. In this neat publication there is an enlightened and interesting address to customers regarding the Centennial Exhibition, and regretting that California made so poor a show of her wonderful and attractive productions. Also, there is a favorable notice of a variety of the Japan Persimmon, from Colonel Hollister, in Santa Barbara, "a fruit destined to become ere long popular both for home and foreign consump

tion," likewise as good a quality of Limes as the best imported. Also in Mr. Trumbull's yard, at his nursery in San Rafael, is a Sweet Mediterranean Orange about four feet high, from Garey's Semi-tropical Nursery, at Los Angeles; it was planted in April, and is now bearing 20 Oranges. San Rafael is growing successfully, besides Lemons of good quality, Oranges as far north as Chico, on General Bidwell's place. Bananas are maturing at Los Angeles. Mr. Trumbull is now importing the Coffee tree, and thinks it will prove a success. Some excellent instructions are given in the above Catalogue for the cultivation of bulbs and roots, and on hot beds and cold frames, flowers, what they are and how to manage them, Blue Gum, Monterey Cypress, Monterey Pine; Italian Cypress, and their culture, directions for sprouting fruit and nut seeds, Osage Orange for hedges, history and culture of Alfalfa, Egyptian and Mediterranean Corn, native California flower and shrub seeds, ornamental trees, prominent evergreen trees, etc.

The New Guide to Rose Culture. The Dingee and Conard Co., Rose growers, West Grove, Chester County, Penn. Roses by mail a specialty, with directions for growing Roses in every way, insect enemies of the Rose, treatment of Roses in pots, Hydrangea grandiflora—new and elegant from Japan, new double Tuberoses, "Pearl," etc.

E. Meyer's General Catalogue of Seeds, Plants, Bulbs, etc. This well known and long time florist, proprietor of the Eureka Nursery, Stanyan Street, near the Golden Gate Park, has a good assortment of stock on hand, and is always found obliging and accommodating to his customers.

The Annual Circular and Retail Catalogue of Warranted Vegetable and Flower

Seeds grown and sold by James I. S. Gregory, Marblehead, Mass., is received. A neat and handsome publication, and a large business is transacted by the establishment.

WOODWARD'S GARDENS.

At this favorite place of resort, ever furnishing something new for the delectation of the public, there have been added lately two new features in Natural History, namely, a case of Crustacea in the Photograph Gallery, and a large case of Insecta, consisting of butterflies, moths, beetles, etc. This last is under the porch of the apartments for the cabinets of birds, beasts, fishes, etc., to the right before entering, and round the corner of the building. This deeply interesting branch is one that can not fail to prove attractive to general visitors, especially those who engage in its pursuit, not only from the extreme beauty, brilliancy, and variety of color and form displayed by the insect world (though in these respects almost unrivaled), but also from the unbounded proofs of the Great Creator's goodness and wisdom evinced, in the adaptation of each member in its numerous families to the purposes of creation; and in the instincts bestowed upon them, by which these purposes are fulfilled. The visitor to these insecta cases, unless he is totally insensible to the wonderfully gorgeous beauty and interest of their contents, will feel reluctant to depart from their sight and contemplation.

The cases holding the fishes (many of them belonging to our coast), serpents, turtles, and crustaceans, in the Photograph Hall, will attract a large amount of attention to these wonders and beauties of Nature. The crustaceans, like the fishes and many other

animals, are very serviceable to man, furnishing a considerable amount of food both in his savage and civilized condition. The crabs and lobsters cleanse the deep, too, of its putrifying remains. They, like the star-fishes, are endowed with a great appetite for food and the power of digesting it in large quantities. Crabs abound on our coast and in our bays, and Eastern lobsters have been lately introduced. We have great numbers of large cray-fish, and, with these, are specimens of the same crustacean family and others from all parts of the world. The preserved or stuffed serpents and snakes are various and curious for their marking, and some of them for their brilliant colors, one being crimson in its rings. Among the fishes are the Father Lasher, the fishing frog, or angler, the wolf fish, the John Dory, and the great sun-fish. The two collections do much credit to Mr. Gruber, the naturalist of the Gardens, which are looking in excellent order, and, as usual, replete with objects of great attraction, curiosity, beauty, and interest, with continual additions. Among these is a camera obscura on one of the sides of the menagerie yard, and showing all the surrounding scenes on a round and flat horizontal tablet.

PROSPECTUS OF THE BOTANIC GARDEN, PLANT AND SEED COMPANY.

No public enterprise has hitherto been suggested to the people of the Pacific Slope, which is more justly worthy of general support than that of a Botanic Garden. The great utility of such an institution may not immediately present itself to our citizens in general; but by those who have given the subject some consideration, and there are many such among our scientific and practical men, the educational, com-

mercial and practical benefits derivable from such an establishment are fully admitted and highly appreciated. Some of the functions of such an institution may be thus enumerated:

1st. The gathering, as far as practicable, from all countries, specimens not only of those exceedingly numerous trees, shrubs, and plants which supply our every day necessities, but of those also which minister to our luxuries, and as medicinal remedies alleviate our ailments; thus collected they would not only afford opportunity for scientific study and observation, as well as a field for educational improvement; but would test their adaptability to our glorious climate and soil, and it would be marvelous if out of so large a selection some would not present themselves, that—like the Cinchona and Tea plantations of British India—would repay a thousand fold all the labor and expense of experimenting.

2d. The collecting and scientific testing our own Flora, of which at present comparatively little is known, and of introducing to the scientific and commercial world, some, which, although partially known, are not duly appreciated.

3d. The interchanging with other botanical establishments in various parts of the world, and thus adding to our own comforts and resources.

The establishment of a Botanic Garden, however, in the full sense of the term, would involve a very large outlay and Government aid, and as hitherto no plan has been suggested to those of our citizens, who, although fully appreciating the necessity for such an institution, and willing to assist, yet are reluctant to incur the continuous draft on their pockets for current expenses, etc. It is therefore proposed, either by exchange or otherwise, to collect

and cultivate specimens of trees, shrubs and plants of every kind, whether useful or ornamental, that can be adapted to our soil and climate, and to arrange them at a Botanic Garden in such manner as to make it a desirable place of public resort, as well as study; it being the intention to supply to scientific and educational establishments specimens of plants free of charge, for subjects of botanical lessons and lectures. With the Garden it is proposed to connect a Nursery and Seed Farm, etc., for the raising and cultivation of various products which are certain to yield a large profit, not only amply sufficient to cover the expenses of the Garden, but also to make an excellent return to the stockholders. This section of the enterprise would comprise—

1st. A first-class nursery, devoted to the raising and cultivating of every class of trees, shrubs and plants for which a ready market could be found, both on this coast and elsewhere. An extensive nursery of this kind is much needed, and would be very profitable. A most important item in this department would be the raising of cut flowers of every variety to furnish the market. There are now annually expended over \$200,000 in this city for that purpose, and the supply is not equal to the demand; five acres of land judiciously devoted to this branch would amply meet the requirements, and the profits realized would be enormous.

2d. A Medical Herb Garden.—The climate of California is so well adapted to the cultivation of this class of plants that we should supply the world with them. Our facilities are so good and the demand is so great that this can not fail to be a most profitable branch.

3d. A department for the cultivation of Immortelles and dried Grasses. Nearly all of these are at present im-

ported from Europe, at great expense; yet there is no place on the face of the earth better adapted for the cultivation of this class of plants than California, on account of its dry summers; while in Europe the entire crop often fails from heavy rains. The demand for these products exceeds the supply by many thousand dollars.

4th. A Seed Farm, for the raising of all such vegetables and flower seeds as command a very high price in the Eastern and European markets, from the fact that these can only be successfully cultivated during a most favorable season, while in California a full crop would be secured every year. A very large profit can be obtained from this department at small outlay.

5th. A department for the collecting and exporting of our indigenous trees, shrubs and plants, bulbs and seeds; already the exportation of these amounts to over \$20,000 annually, and by proper exertion the business could be largely increased; exchanges with scientific institutions, and importations of such stock as is needed here would be connected with this branch; this also is very profitable.

6th. A Pacific Coast Seed and Floral Supply Store.—An establishment of this kind, where every article can be found which pertains to Floriculture and Horticulture is sadly needed on this coast, as at the present time there is no business in existence which covers the ground. All who have given the matter any attention will bear out the fact, that this department can be made a very extensive and lucrative one.

A large depot in the City of San Francisco is indispensable for the cultivation of greenhouse plants; for the sale of all the products of the farm, and for the principal place of business.

For this purpose it is proposed to purchase the establishment now known as the Exotic Gardens, on Mission Street, opposite Woodward's Gardens, with all the stock, buildings, improvements, good will and lease of land unexpired, (9 years). The location of the Exotic Gardens is most favorable for the enterprise, and the business itself is so far established that the actual profits from rent, the sale of plants, seeds, and other products, place it in a paying condition. The enterprise, however, does not represent sufficient capital to carry out all the requirements. The most suitable locality for the Botanic Garden is in Alameda County, in the immediate vicinity of the railroad, so that the Garden might be easily reached, and the products be shipped without inconvenience to any part of the State. The amount of capital required for the purchase of the Exotic Gardens, with all the stock and improvements belonging thereto; the purchase of the necessary land in Alameda County, and for the improvements on the land; for the laying out and planting the Botanic Gardens, and for carrying out all the propositions above mentioned, will not exceed \$130,000. For this purpose it is the intention to form an incorporated Company with a capital of \$250,000, divided into 2,500 unassessable shares of \$100.

The present proprietors of the Exotic Gardens will take stock in the new company for nearly their whole interest, and it will therefore only require additional subscriptions to the amount of 600 shares to effect the purchase of the Exotic Gardens, and to secure the necessary land for all other purposes. This will place the Company at once into a profitable business. And even without any other immediate sale of stock it will enable the Company to

gradually go on with the other enterprises on a self-sustaining basis. As an inducement to first subscribers the above 600 shares will be issued as fully paid up stock, at \$50 each; the Company reserving for itself the right to regulate the value of future issues as the enterprise progresses. There can hardly be a doubt that as soon as the public have taken in the full scope of the project; have understood its utility; its beneficial results to the State, and its certain pecuniary success, that every share necessary for the complete establishment of the enterprise will be eagerly taken at par. In connection with the enterprise it is proposed that the Company issue certificates of life membership on the payment of \$100, which certificate should entitle the holder to select every year during his or her lifetime plants to the amount of \$20, from the catalogue published annually. Sufficient money may be realized by the issuing of such certificates to meet the entire expense of the Company, so that all sales made otherwise would be actual profit to the concern.

The following gentlemen have permitted their names to be appended as recommendatory of the enterprise: Prof. Geo. Davidson, Hon. Mr. Justice Niles, I. Friedlander, Esq., Tiburcio Parrott, Esq., Dr. A. Kellogg, Lloyd Tevis, Esq., H. Edwards, Esq., Dr. H. Behr, Henri Schmeidel, Esq., Hon. Milton S. Latham, Hon. Horace Davis, Wm. Alvord, Esq., A. Crawford, Esq., E. K. Howes, Esq., W. T. Coleman, W. F. Babcock, Esq., Sydney M. Smith, Esq., Geo. B. Bayley, Esq.

STATISTICS show that the average earnings of the agriculturist of the South are \$266, while those in California average \$1,042. The specialty of cotton is less profitable than diverse farming.

FRUIT CULTIVATION AND REPORT OF FRUIT AND VEGETABLE MARKET.

There is a species of Plum called the Bullace (*Prunus insilitia*), a good deal cultivated in Europe, which we have not yet met with in California, and which is kept a long time in England in the manner of bottled and canned fruit. This fruit is rather austere in flavor, but is grown where a full collection of all the varieties of the Plum is desired. No doubt this kind would do well on this coast. The tree, to be sure, is somewhat of a spare-growing one, subject to moss and decay in parts; when this happens it should be severely pruned, that additional vigor may be thrown into the subsequent new shoots, and a considerable thinning of the branches should take place annually. It is one of the latest of the Plum tribe, furnishing fresh fruit for tarts up till the arrival of fall or winter frosts, and this feature, together with its character for preserving, seem to make it desirable to attempt the improvement of its size and quality in this most favorable slope for all kinds of fruit. At present it is raised and treated as a mere wildling from seed which always, like the Damson, brings the same sort as the parent tree; it is probable, however, that if some care were taken to select grafts from the very best varieties, for it certainly sports like some other fruits in this way, and they were worked on free growing Plum stocks that a change might be brought on, which, once effected, may be carried by perseverance to almost any length.

The Medlar (*Mespilus Germanica*), nat. ord. *Rosaceæ*, is a fruit not often seen in our fruiterers stalls, but when seen it is about this time (January and February). It is not eatable till in a state of incipient decay. Then it is

much liked by a few persons. In complete orchards, one or two specimens of this tree are necessary, though it is not generally cultivated. As regards situation and treatment, it resembles in every respect the Apple tree, and the fruit should be gathered along with the late varieties of that fruit.

As is well known, new varieties of Apples, as of all other vegetable forms, are obtained from seeds. New kinds, to be worth preserving, must possess some very decided superior qualities (for there are now nearly 1,500 distinct kinds from all countries), which may be regarded as worth cultivating for some purpose or other, independent of others decidedly valueless.

The raising of seedling Pears even in our favorable and rapidly growing climate is a tedious work, requiring several years ere they can be brought to a fruitful state, especially when they are allowed to grow in the natural manner on their own roots, and is consequently not often resorted to or experimented upon, though a knowledge of the means of producing precocity, through grafting on the Quince stock, has a tendency to their more extended production and testing.

Two methods of originating new varieties of fruits (of course including the Pear), have been practiced; the *natural* method of Van Mons, and the *artificial* method of Knight. Van Mons' theory is founded upon two physical facts: 1. That all seeds in a state of nature can be made by cultivation to vary from their condition, which variations may be fixed, and become permanent. 2. That all cultivated seeds have a tendency to return toward that natural state, from which they originally varied. We say *toward*, for he supposed that an improved fruit would never return to the original and natural type.

Andrew Knight, one of the most original and philosophic horticulturists that ever lived, pursued an entirely different method — that of *cross-fertilization*. He carefully removed the anthers from the blossoms upon which he wished to operate, so that the stigma should not receive a particle of the pollen belonging to its own flower. He then procured from the variety he wished to crop, a portion of the pollen, and artificially impregnated the prepared blossom with it. When the fruit thus produced had ripened its seeds, they were sown, and by regular process brought into bearing. The progeny were found to combine, in various degrees of excellence, the qualities of both parents. Knight's method must always be preferred as a practical system. We can obtain a return for our labor in one-fifth of the time; and, what is even more important, we can regulate, before-hand, the results within certain limits. The new fruit is to be made up of the qualities of its parents in various proportions. We can not determine what the proportions shall be, but we can determine what parents shall be selected. Nor is it at all improbable that, when knowledge has become more exact by a longer and larger experience, the breeder of fruit may cross the varieties with nearly the same certainty of result as does the breeder of stock.

It is upon this feature, the power which science has over the results to be obtained, that we look with the greatest interest; and we urge upon scientific cultivators the duty of perfecting our fruits by judicious breeding.

We quote the following from the retail market report up to the 12th of January last:

It is very seldom that Tomatoes are seen in market at this season of the

year in as good condition as those that are now coming forward. While the supply, owing to cold, wet weather, usually gives out in December, with a few boxes of a pale, reddish-green hue, and of flavorless quality, those now coming in are as high colored and nearly equal to those of summer growth. In several localities the vines are still uninjured by frost. String Beans, Green Peas, new Potatoes, and Asparagus are received daily from the Mission gardens, and are of good quality for the season. Potatoes by the single sack can be had at \$1.25 to \$2 per 100 pounds, delivered. Sweet Potatoes have become suddenly scarce. It is said that many growers on the Sacramento River, on opening the heaps that were covered at digging time, have found a very large portion rotted, a circumstance attributed to the heavy early rains.

No change of importance is noticeable in the fruit market. Apples and Pears are sufficiently plentiful for all requirements, at \$1 to \$2 for the former, and \$1.50 to \$2.50 per box for the latter. A few Mission Grapes, fresh from the vines and in good order, can be had at 15c. to 20c., while Purple Damascus retail at 25c. per lb.

We place on record in the HORTICULTURIST the following interesting and instructive account, of our fruit market last year, quoted from that capital, complete, and reliable authority, the *Commercial Herald and Market Review*, published in our city by Messrs. Carmany & Co.:

The market the past year has been bountifully supplied with Apricots, Apples, Peaches, Plums, Currants, Figs, Grapes, Blackberries, Strawberries, etc. The crop has been very large and prices have ruled low for leading varieties (during an overstocked market),

particularly Peaches, Plums, and Grapes. Those inland towns and mining camps which looked to this market for regular supplies of fruit a few years ago now have extensive orchards of their own which supply the home demand, and their surplus is shipped here. Considering the limited outlet to this market it is surprising how such large quantities of perishable goods can be disposed of, and how little goes to waste. If we could send the surplus to other sections of our country where the multitude could partake of our abundance, it would add greatly to our resources and prove a great relief to our overstocked local market. The overland trade in fresh fruit is increasing, which will steadily increase if freight rates are reduced to more reasonable rates. During the past season 334 carloads were shipped East, principally from three points, viz.: 143 cars from Sacramento, 168 from San Jose, and 23 from Marysville; the rates of freight on a car-load of 20,000 lbs. being \$1,175 to New York for fast time, and \$675 slow; to Chicago, \$800 fast time, and \$500 slow. Preparations are being made to do an increased business next year, and refrigerator cars will be used for forwarding perishable fruit. The first invoice of Blackberries was received from Alameda the last of May. These were the Aughinbaugh, the earliest variety known. The first consignment of Lawton Blackberries arrived the 2d of June from Putah Creek, Solano County, which is a famous locality for producing early fruit. Some years ago Mr. Wolfskill planted a few Oranges as an experiment. They show the climate at Putah Creek to be a more favorable locality for semi-tropical fruit than Los Angeles. From these few trees 4,435 Oranges have been marketed this season, which sold at \$6 to \$7

per hundred. They are light colored, and compare favorably with the celebrated San Gabriel, Lake Vineyard, and Sunny Slope Orange when they are fully ripe, showing the season to be at least a month earlier, although they are grown four hundred miles north of the beautiful groves in Los Angeles. The principal source of supply of California Oranges is from Los Angeles County. Many groves have been planted in the northern part of the State, but the trees have not come into bearing, with the exception of a few from Sonoma, Solano and Contra Costa counties, but for many years Los Angeles will be the largest source of home supply. During the past year the State sent to this market 2,750,000 Oranges and 350,000 Lemons, against 5,000,000 Oranges and 600,000 Lemons for the year before. The crop was a very short one, but the prices were correspondingly high. It is always a rule that a large crop follows a short one, so we may reasonably expect to see it fulfilled this season (1877). The demand however, keeps pace with the production. From Tahiti twenty-one cargoes of Oranges arrived during the season, with a total of 5,128,000. This trade begins about the close of the Los Angeles crop (in April) and extends into the months of September and October, although a few arrived as late as November. Cherries were a very fair crop, but not so plenty as expected. The first of the season arrived about the first of May from Solano County, being a variety known as the Early Purple Guigne, and were very fine. They sold at \$2 per lb. Most of our Strawberries are grown in Santa Clara Valley. Between Alviso and San Jose there is a section of country supplied with artesian wells specially adapted to growing Strawberries, which reach this market every morn-

ing, mostly on the steamer Relief. Last season they shipped by steamer from April 3d to Nov. 1st 18,904 chests—probably 5,000 chests were shipped by railroad; 11 tons, or 275 chests, were the average receipts per day, against 3 or 4 tons per day for the corresponding time the year before. The deficiency was attributed to the April frosts. Red Currants from across the bay were very plentiful. A large portion went to the canners. Toward the last canners refused to take the daily surplus at any price. The crop was immense, exceeding the demand. Of Apricots the market was largely overstocked, more received than in any previous year. Figs were a drug in the market during the height of the season. The first Peaches arrived from Briggs' Orchard at Marysville the 31st of May, being two weeks earlier than the year before. These are from a seedling called "Red May," the earliest variety known in the State. Two weeks later the market was overstocked with Peaches, mostly Hale's Early Variety, selling on the wharf by the invoice as low as 35c. to 75c. per basket. Higher prices prevailed later, when the Crawford came in, and canners entered the market for supplies, but last season the Peach crop throughout the State was the largest ever known. So with Apples and Plums, owing to the crop being very light the year before. The weather continued cold as late as the 5th of April, when a heavy frost ruined the fruit crop that season; but in 1875 the trees overburdened the branches, breaking them down with the weight of fruit; so there has been an unusual supply this season. The Grape crop also was unusually large, and twice the quantity shipped to this market than ever before, as the wine-makers in the interior having large stocks of wine on

hand did not care to enter the market for supplies, as most of them had their casks full, so that shippers were compelled to send their crops to this market, knowing it was overstocked and sadly demoralized.

There is no portion of the State offering a better prospect than this city to a company who will take the daily surplus and manufacture brandy or make it into wine. Raisins cured by patent dryers are not a success. The finest California raisins now in market are sun-dried, and many are of superior quality—but not all. A great improvement has been made in this department, but the Grapes are not sufficiently protected during the drying process from rain, dew, or fog, and a portion of the crop was ruined by the first rain of the season. The balance saved is estimated at 30,000 boxes, of 20 lbs. each. Winter Apples are very plentiful—unusually so for this season of the year. The bulk of supplies coming forward are of rather poor quality, and can only be disposed of at low rates; choice lots are in demand for shipping. Pears are scarce.

About the first of this month (February) Los Angeles Oranges arrived in large quantities, both by rail and steamer, but, like all that have reached here from that vicinity, they are as yet undersized generally, with thick skins and by no means sweet and pleasant to the palate. It is true it is still rather early in the season for them, and we hope soon to receive as good ones as usually arrive from the southern portion of the State. As there were no others in the market, however acid, prices were well maintained.

There is continued complaint of the difficulty found in obtaining strictly choice Potatoes. While the market is overstocked with inferior to fair grades,

choice descriptions are coming in from only a few favored localities, and are very scarce. Ordinary qualities are plentiful at \$1 to \$1.25 by the sack, while the best command \$1.50 to \$1.75 per 100 pounds. New Potatoes are steady at 5c. to 6c. String Beans have finally disappeared, having been continuously in market since April. Green Peas are less plentiful and higher, owing to rainy weather. Tomatoes are coming in regularly, and are remarkably bright and of good quality for the season, bidding fair to last until the new crop comes forward.

A NEW PEST TO FRUIT TREES.

We are informed by a cultivator of fruit that his trees last year were much infested by the woolly aphis. He found he could not effect their destruction when once in numbers on his trees, but he discovered that by digging round the roots near the stems of his trees, laying the roots bare, and pouring in the holes whale oil soap mixed with water made only moderately strong, that they were effectually debarred from rising from the ground to his orchard. The probable result of this operation was the total destruction of the eggs of the injurious insect. Another mode to get rid of these pests at the roots of plants is to put about a peck of soot into five gallons of water, and let it stand four or five days, then use the water without disturbing the sediment. The water to be poured round the roots of the trees or plants, care being taken not to get the mixture on the foliage. If the aphis is on the foliage, the mixture can be reduced one-half, and be applied with syringe. The best time to apply this remedy is just after the sun is down and while it is yet light enough to work.

CITY VS. COUNTRY TEMPERATURE.—M. Fines has determined by recent investigations that the mean annual temperature in the interior of a city is decidedly higher than in the country around. In the fall and winter the maximum temperatures are somewhat lower in the city than they are in the country; but in the spring and summer they are somewhat higher. On clear nights the difference in the minimum temperatures in the city and the country rises as high as $13\frac{1}{2}^{\circ}$ Fahrenheit. The extremes in temperature are also greater in the country than in the city—the annual average difference between the maximum and minimum temperatures being considerably larger.

METEOROLOGICAL RECORD.

FOR THE MONTH ENDING JANUARY 31, 1877.
(Prepared for THE HORTICULTURIST by THOS. TENNENT,
Mathematical Instrument and Chronometer-maker, No.
18 Market Street.)

BAROMETER.

Mean height at 9 A. M.	30.15 in.
do 12 M.	30.15
do 3 P. M.	30.14
do 6 P. M.	30.13
Highest point on the 4th at 9 A. M.	30.43
Lowest point on the 17th at 6 P. M.	29.77

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	52°
do 12 M.	59°
do 3 P. M.	58°
do 6 P. M.	52°
Highest point on the 5th at 12 M.	69°
Lowest point on the 13th at 9 A. M.	44°

SELF-REGISTERING THERMOMETER.

Mean height during the night	44°
Highest point at sunrise on the 29th	52°
Lowest point at sunrise on the 15th	36°

WINDS.

North and north-east on 15 days; south and south-east on 4 days; south-west on 10 days; west on 2 days.

WEATHER.

Clear all day 16 days; cloudy on 10 days; variable on 5 days.

RAIN GAUGE.

	Inches.
16th	0.42
17th	0.41
18th	0.40
19th	0.22
21st	0.07
28th	0.91
29th	0.30
30th	1.53
31st	0.10

Total	4.36
Previously reported	3.21
Total up to date	7.57

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. VII.

SAN FRANCISCO, MARCH, 1877.

No. 3.

DESCRIPTION OF THE JAPANESE PERSIMMON.

BY A TRAVELER IN JAPAN.*

The tree itself is one of the handsomest of fruit trees, and in the fall, with its golden-hued fruit hanging to the branches after the leaves have fallen, forms a beautiful and striking picture in a landscape. The timber furnished by this tree is very valuable, and is much used by the Japanese for carved work, cornices, solid articles of furniture, and such objects as require a comparatively heavy and close grained wood, which by its color and tissue is well suited for ornamentation and handsome utility.

The juice expressed from unripe Persimmons (Kaki) forms a very useful liquid for staining wood, giving it a rich brown color, like walnut. Much of the carved wood and wooden utensils and cabinets from Japan, often supposed to be walnut by our people, is in reality only common wood, stained with Persimmon juice. Some of the most ele-

gant wood carvings at the Centennial were of this nature.

As to the fruit itself, it is nutritious, palatable, and is in a high degree charged with those chemical ingredients which give most fruits their value in preserving the health and purifying the blood. This fact is insisted on by the Japanese doctors, some of whom I have known to cure their patients by a "Persimmon cure," like that of the "Grape cure" of Southern Europe.

There are several kinds of Kaki—one shaped like our sheep-nosed Apple is considered the finest. There are others of a nearly perfect roundness, and others shaped more like Tomatoes, but much less corrugated.

The most luscious Japanese Persimmons are ripened by air-tight enclosure in casks containing saké, which in two or three weeks perfect a remarkable flavor. Unlike our fruit, the Japanese species ripens without frost, though frost will improve the common varieties.

The large amount of grape sugar in this fruit has set some persons experimenting on them to determine whether sugar could be extracted in paying quantities. I do not know whether

* Prof. W. E. Griffis, who was three years in Japan, and is the author of "The Mikado's Empire," recently published by Harper & Bros.

satisfactory results have yet been obtained. The fact of their containing so much saccharine matter is the reason of the ease with which they may be dried, or cured, in which form they are sold as sweetmeats in Japanese shops. This is done by smoke, sun, furnace, or ordinary kitchen heat. Some of the finest specimens are scarcely inferior to Figs.

The best localities in Japan are, I understand, at Iyo, in Shokoku, and in Musashi, in which Tokio is situated. Usually the trees are not planted with much regularity; a southern exposure in the vicinity of a brook or river being the best. In Iyo, however, and near Tokio, nurseries or orchards are set out.

TASTE IN THE CULTIVATION OF FLOWERS.

In general, we cultivate flowers for their beauty, but tastes differ, and we do not always agree in the use of terms, or define them clearly. Beauty may be either simple or composite. There is a beauty of form irrespective of other elements, as a curve—the rainbow without its colors; there is a beauty of color, as the Tyrian purple, or the azure of a cloudless sky; there is a beauty of texture, as in the soft satin or fur; but a flower, to be beautiful, must combine beauty of form, color, and texture, and, lacking either of them, it ceases to be beautiful as a flower. It may be of beautiful form, as a plaster rose; or of beautiful color, as a naturally or artificially painted cheek; or of exquisite texture, as the eider down; or, further, it may also be curious in its parts, as the Fly-trap, or carnivorous plants; or admirable in its arrangement, as the Pitcher-plant, but it is not a beautiful flower. If, however, a flower possess these elements of beauty, its beauty will

be heightened by the variation and multiplication of one or more of them. The numerous and varied curves in the Cupped Rose and Meadow Lily add greatly to the beauty of the first, and give to the last its peculiar elegance; the varied shades or mingled stripes of color in the Tulip and the Carnation give them their power to excite enthusiastic admiration, and make men "Tulip fanciers and Pansy zealots," etc.; and the varied texture of the Iris and many other flowers adds sensibly to their beauty.

But in choosing flowers for cultivation, we take some that are not beautiful, because they are showy, and others because they are fragrant, and still others because they come so early in the spring as to afford us the first substantial assurance of its return, or so late in the fall as to postpone somewhat the thought of the winter or time of rest which comes to most of the flowers even in our almost constantly blooming climate of California. We would liken flowers somewhat to the various grades of beauty and form in the gentle and softer sex. Some individuals' style of loveliness may be termed pretty, some handsome, and others surpassingly beautiful.

Would that we could induce more of our fair friends, especially the young, in this city and throughout our State, to give more attention to the culture of flowers than they do; by their own skill and labor multiplying around their homes those pleasant associations and enjoyments, the fragrant and ever-blooming memories of which may yield them refreshment in the dusty road of after life.

Additional interest might be given to such efforts by obtaining the seeds, or scions, or grafts from scattered school or class-mates. With the cheap mai-

facilities we now possess, there seems to be no reason why there should not be, through this channel, an extensive annual interchange of grafts of valuable fruits, and flower, and vegetable seeds, between the different parts of our country. Our California flora, from its beauty and peculiarities, would be highly prized by our Eastern friends, and they would, no doubt, be willing in exchange for them to send many of the floral and other novelties which they are continually producing themselves, or receiving from the horticulturists of Europe.

BULBOUS-ROOTED FLOWERS.

Although it is now rather late in the season to plant most bulbs, yet there are some bulbous-rooted plants which may still be attended to in that respect; and some short account of a few bulbous perennial flowers may not, although late now, be improperly introduced; but the greater part being comparatively of but little value, and easily cultivated, it does not seem necessary to enter into a very minute or prolix investigation of their properties or culture.

A good, sound, fresh soil, either of the black or loamy kind, with the addition of a little coarse sand, placed around the roots on planting, and fertilized with rotten cow manure, two years old, if the soil and situation be dry and warm, or rotten horse manure if it be cold and wet, is all the compost or preparation required for the greater part of these flowers, observing that the manure should never come in contact with the bulbs, or be placed at so great a depth from the surface of the soil as to lose the advantage of the due action of the air upon it, which would render it poisonous instead of nutritious: in

short, it should never be placed more than eight or ten inches deep, on any occasion, where it can possibly be avoided.

The Polyanthus (*Narcissus*) consists of many varieties; each sort produces several flowers on one stalk; the roots may be planted at the commencement of our rainy season, whether in October, November, or December, about three or four inches deep; they succeed best in rather a warm, dry soil and situation, but if the soil happens to be the reverse, the bed should be raised seven or eight inches above the common level, but in our climate it needs no covering of straw as in the East. The surface of the bed should be formed rather rounding, or mats or hoops should be placed over it, in case of excessive rains. The roots may remain two or three years in the ground without being disturbed; it will then be necessary to take them up, in order to separate their offsets, which by being longer connected with the old roots, will cause them to grow small and weak.

Their bloom will be preserved longer in beauty, like that of all other flowers, if shaded from the excessive heat of the sun. When the circulation of their juices ceases, and their foliage becomes yellowish, the roots may be taken up, cured, and preserved in the same manner as Hyacinths, etc.

Double *Narcissus* (*Daffodils*) consist of several varieties; they are hardier than the former, the Italian excepted, and may be treated in nearly a similar manner.

Jonquils—English, Spanish, and Persian Bulbous-Iris. These three consist of several varieties; they may be planted a few inches deep, at the same time as before stated here, and treated in the same manner as Polyanthus-*Narcis*.

sus. The Spanish Bulbous-Iris is very hardy.

Crown Imperials, Lilies, and Pæonies consist of several varieties. These may be planted from October to February, according to the rainy season, about four or five inches deep, in any soil or situation, being extremely hardy. They do not require to be taken up till the third or fourth year, and then only to separate their offsets.

Martagons (mountain or other Lilies with inverted bells and reflexed petals) consist of many varieties, and may be treated in the same manner as other Lilies; they however make the best appearance on a bed by themselves, and will grow stronger with the addition of some manure, at a depth of six inches from the surface.

The *Arumdra cunculus*, *Lilium Persicum*, *Pancratium maritimum*, etc., may be planted at the same time as directed for the above mentioned bulbs, about one or two inches above the top of the root; they are also very hardy, and our favorable climate well suits them at all seasons.

Colchicums, autumnal Crocuses, Fritillaries, Violets, Orchis, Snakes'-head Iris, and the various Hyacinths, etc., may all be planted one inch deep, and remain in the ground till it becomes necessary to separate their offsets. If required to be removed, it is advisable to do it while the juices are in a state of inactivity, early in the fall.

Anemonoides are to be treated like *Anemones*, except the *Alba*, *Lutea*, and *Rosea*, the roots of which are very long and small, and will not bear to be kept long out of the ground in a dry state.

Spring Crocuses and the hardy sorts of *Gladiolus* may be planted any time in the fall and winter, about one inch deep.

Cyclamens should be planted early

in the fall, one inch deep, in pots filled with sound rich earth, mixed with sand. Those sorts which bloom in the autumn should be planted in the spring; they will not require to be planted oftener than once in two or three years, and should have pots proportionably larger as their roots increase in bulk. They are safely planted out in California, all the year round in the open ground, if desired, which is generally the case. They are propagated only from seed, and are not at all tender here, not even excepting the autumnal *Anemone*-rooted sorts.

Antholyzas, *Ixias*, *Crinums*, and *Jacoea* Lilies, *Oxalis*, *Morea*, *Amaryllis*, *Pancratiums*, should all be planted in autumn, so that the top of the root be one inch below the surface of the earth, which should be composed of equal quantities of loam and bog earth (quite free from manure), with a little coarse sand, as directed for Tulips, which will preserve the roots clean and dry. Particular care should be observed that they receive but little water till they make their appearance, and they have as much light and sun as they can receive, particularly in mild weather.

It exceeds the limits of this article to enter upon the culture, etc., of the almost innumerable species and varieties of other bulbous, herbaceous, and perennial flowers, which are not of great interest to the flower fancier. It will be sufficient to say that they generally prefer a light, fresh soil, and should, of course, be faithfully kept free from weeds; and they are so well known, in general, to flower cultivators, as to render an addition of the kind to this article unnecessary.

THE Plum tree should have a rich and moist soil, and when planted in poor soil manure should be used freely.

THE NEW JAPAN PERSIMMON (*DIOS-PYRUS KAKI*)

This nice fruit is about the size and shape of an apple, with a reddish orange-colored skin; the flesh is semi-transparent, brown, soft and pulpy, with a most agreeable honey-like flavor. In the inside are several hard seeds. The tree itself is said to be highly ornamental, of the size of the apple, is a good bearer, capable of enduring some sharp white frosts, and the fruit ripens early in the fall. Like the common Persimmon of the Middle States, it is not necessary that there should be much frost to render the fruit pleasant to the palate by neutralizing its extreme acidity, the fruit of this Japan Persimmon being free from much acidity, and not at all pungent in its qualities. It is also firm enough for distant shipment. It can be dried like other fruits, for in China and Japan it is made into a delicious preserve. There can be no doubt of its being successfully cultivated in most parts of California, and it has been already fruited with large and handsome specimens at Col. Hollister's place, Santa Barbara. Its average weight given is from half a pound to over a pound. The tree comes into bearing early, or in from one to three or four years. In Japan there are several kinds of this tree similar to the apple. Of the varieties the chief are, according to the London Horticultural Society:

1. *Ono Kaki*, of which the fruits are like an Orange; being dried in the sun and mixed with sugar, they are preserved and sold as figs.

2. *Kineri Kaki*, of which the fruit is not fit for drying, but is eaten fresh.

3. *Ssibu Kaki*, of which the fruit is rather bitter, and hardly fit to eat. But there appear to be many sorts.

Four varieties of this promising fruit have been lately introduced into California, both in the south, as at Santa Barbara, and in our city, by the Rev. Henry Loomis, at Trumbull's seed-store, 421 Sansome Street, where specimens of the trees and their fruit can be seen by horticulturists and the curious in such matters.

We can not refrain from expressing a hope that the instance of success with this desirable fruit at Santa Barbara, and with many other tropical fruits in our State, will induce those who have the opportunity and means, to persevere in attempts so happily begun, of adding some of the rich fruits of China, Japan, and the Indies, to the delicacies of our desserts. Those who feel at all doubtful of the event, must reflect that all the fruits which adorn our orchards and gardens at the present day, the Currant, the Gooseberry, and the Raspberry, are the only kinds which are not natives of a milder climate than England. Every one knows that the cultivated Apple and Pear were introduced from Italy; and the rest, the greater part of which were brought originally from the confines of the very countries where many of tropical and semi-tropical fruits grow spontaneously. The natives of the hotter regions of the world are generally too indolent to improve the riches they enjoy, but are contented with receiving them from the hand of nature, without an effort at ameliorating them. And this, we conceive, is an additional motive to stimulate us to exertion; because it presents us with the prospect of possessing, through the arts of cultivation, as great a superiority in tropical and semi-tropical fruits generally, as we have already acquired in those to which we have taken the pains of directing our attention.

CICERO ON RURAL LIFE AND HUSBANDRY.

This eminent writer and orator having spoken so intelligently and truly on these subjects, so many years ago (106 B. C.), makes it interesting to the general public to hear what he said. We met with the following remarks of this great ancient in looking over his letter on old age to his friend Titus Pomponius Atticus, a celebrated Roman knight. Cicero discourses in this wise :

"I come now to the pleasures of the husbandman [and horticulturist, of course], with which I am excessively delighted; which are not checked by any old age, and appear in my mind to make the nearest approach to the life of a wise man. For they have relation to the earth, which never refuses to respond to what it is skillfully and industriously requested to perform, and never returns without interest that which it hath received; but sometimes with less, generally, though, with very great interest. And yet, for my part, it is not only the product, but the virtue and nature of the earth itself delights me; which, when in its softened and subdued bosom it has received the scattered seed, first of all confines what is hidden within it, from which harrowing, which produces that effect, derives its name (*occatio*); then, when it is warmed by heat and its own compression, it spreads it out, and elicits from it the verdant blade, which, supported by the fibres of the roots, gradually grows up, and rising on a jointed stalk, is now enclosed in a sheath, as if it were of tender age, out of which, when it hath shot up, there pours forth the fruit of the ear, piled in due order, and is guarded by a rampart of beards against the pecking of the smaller birds. Why should I, in the case of vines, tell

of the plantings, the risings, the stages of growth? That you may know the repose and amusement of my old age, I assure you that I can never have enough of that gratification. For I pass over the peculiar nature of all things which are produced from the earth: which generates such great trunks and branches for so small a grain of the fig or from the grape-stone, or from the minutest seeds of other fruits and roots; shoots, plants, twigs, quicksets, layers, do not these produce the effect of delighting any one even to admiration? The vine, indeed, which by nature is prone to fall and bend down to the ground, unless it be propped in order to raise itself up, embraces with its tendrils, as it were with hands, whatever it meets with, which, as it creeps with manifold and wandering course, the skill of the horticulturist, pruning with the knife, restrains from running into a forest of branches, and spreading too far in all directions. Accordingly, in the beginning of spring, in those twigs which are left, there rises up as it were at the joints of the branches that which is called a bud, from which the nascent grape shows itself; which, increasing in size by the moisture of the earth and the heat of the sun, is at first very acid to the taste, and then as it ripens grows sweet, and being clothed with its large leaves, does not want moderate warmth, and yet keeps off the excessive heat of the sun; than which what can be in fruit on the one hand more rich, or on the other hand more beautiful in appearance? Of which not only the benefits and advantage, as I said before, but also the cultivation and the nature itself delights. The rows of props, the joining of the heads, the tying up and propagation of vines, and the pruning of some branches, and the grafting of others,

which I have mentioned. Why should I allude to irrigations, why to the digging of the ground, why to the trenching by which the ground is made much more productive? Why should I speak of the advantage of manuring?

"Nor indeed is rural life delightful by reason of corn-fields only, and meadows, and vineyards, and groves, but also for its gardens and orchards; also for the feeding of cattle, the swarms of bees, and the variety of all kinds of flowers. Nor do plantings only give me delight, but also engraftings, than which agriculture has invented nothing more ingenious.

"I can enumerate many amusements of rustic life, but even those things which I have mentioned I perceive to be rather long, and perhaps tedious. But you will forgive me; for both from my love of rural life I have been carried away, and old age is by nature rather talkative, that I may not appear to vindicate it from all failings. In such a life, then, as this, Marcus Carius, after he had triumphed over the Samnites, over the Sabines, over Phyrrius, spent the closing period of his existence; in contemplating whose country seat I can not sufficiently admire either the continence of the man himself, or the moral character of the times.

"Was then the old age of many great warriors to be pitied, who amused themselves in the cultivation of land? In my opinion, indeed, I know not whether any other can be more happy; and not only in the discharge of duty, because to the whole of mankind the cultivation of the land is beneficial, but also from the amusement, and that fullness and abundance of all things which are connected with the food of men, and also with the worship of the gods; so that, since some have a desire for these things, we may again

put ourselves on good terms with pleasure. For the wine-cellar of a good diligent master is always well stored; the oil-casks, the pantry also, the whole farm-house is richly supplied; it always abounds in pigs, kids, lambs, hens, milk, cheese, honey. Then, too, the countrymen themselves call the garden a second dessert. And then what gives a greater relish to these things is that kind of leisure labor, fowling, and hunting, and fishing. Why should I speak of the greenness of meadows, or the rows of trees, or handsome appearance of vineyards and Olive grounds? Let me cut the matter short. Nothing can be either more rich in use, or more elegant in appearance, than ground well tilled, to the enjoyment of which old age is so far from being an obstacle, that it is even an invitation and allurement. For where can that age be better warmed either by basking in the sun or before the fire, or again be more healthfully refreshed by shades and waters? Let the young, therefore, keep to themselves their arms, horses, spears, clubs, tennis-ball, swimming, and races; to us old men let them leave out of many amusements the *tali* and *tesseræ* (dice); and even in that matter it may be as they please, since old age can be happy without these amusements if they love the farm, the garden, and the orchard."

"I look upon the pleasure which we take in a garden as one of the most innocent delights of human life. A garden was said to be the habitation of our first parents before the fall. It is naturally apt to fill the mind with calmness and tranquillity, and to lay all its turbulent passions at rest. It gives us a great insight into the contrivance and wisdom of Providence, and suggests innumerable subjects for meditation."
—*Spectator*, No. 477.



Rod and Gun.

CAMPING OUT—LIFE IN THE WOODS— KILLING DEER BY NIGHT.

We will endeavor to recall to memory some adventures and scenes which took place with us and some companions, a few years ago. These events transpired on the Grand River, in Canada West. Most of this river was, with its heavily timbered shores, then in a wild state. There were at that time but few clearings. The woods were full of game, but particularly of deer. It was those we were after. And although we hunted this game in the daytime with dogs, and stationed ourselves at certain points or natural opening in the forests, we would oftentimes resort, by way of variety, to what is called "floating" on these animals by night—a favorite mode, too, of the Indians, who were rather numerous then in those parts.

We call to mind one night in particular, and a real inkstand of a night, too, dark and not windy, and we reckoned, before starting, one deer, if not two, just about as good as dead. We slipped on our overcoat and grasped a blanket to defend our knees and guard against the chill of the night air. There were three of us, one was a good marksman; as to ourselves we had at that period but little experience with the rifle; the third was to handle the pad-

dle. The latter duty required consummate skill, which the old boatman proved himself, on this occasion, to possess. He seated himself at the stern, while the marksman took the oars; we sat in the middle, and our dug-out skimmed rapidly down the river, a bend of which soon made us lose sight of our camp fire. .

Our "jack" was a semi-circular piece of birch bark, painted dark; the top and bottom of wood, with two oil lamps behind a glass front, and planted on a wooden handle at the prow. They were not yet lighted. The black woods looked threatening, but the water, although dark, seemed more companionable sprinkled with the reflected stars, and even the wilderness did not appear entirely abandoned, with the same dots of light glittering among the breaks in the gloom.

Nor was the solitude completely silent. Now and then came the chirp of some bird startled by our oars, while the owl's prolonged hoo hoo-hoo, hoo hoo-hoo o-o-o-o-o-o-o-o-o-ah, rounding into a deep-throated, peevish caw, frequently came on the ear. Here and there a skeleton tree, leaning over, made a thick black streak in the air, or a protruding branch dropped an arch, while dark bulks told the margin logs. Soon we landed to trim the lamps and light up the jack. Our marksman examined his rifle to see all was right,

then seated himself directly behind the jack, so as to front the water, with his weapon across his lap.

A red glare played upon the shore and the stream ahead, while the boat remained in deep shadow. The unnatural light dazzles and bewilders the deer, which frequent the banks and shallows, and particularly the sloughs at night, to feed upon the water lilies, and it strikes them motionless, the boat and its occupants being concealed in the gloom. They stand gazing out from the dark background, quite covered with the light, affording a near and generally fatal shot.

The boat seemed now to glide of its own volition, our steersman drawing his paddle so still as not to wake even the whisper of a bursting bubble. Once dipped, the paddle is not withdrawn, but worked by the wrist and elbow, noiseless as the fin of a fish.

As we restrained even our breathing while thus borne along, there was a wierd effect from the glide, making us feel, with Hecate,

"Oh, what a dainty pleasure 'tis,
To sail i' the air!"

The water-flies entering the glare of the jack-light, glittered like specks of gold, as the broad crimson stream startled up the banks, a gigantic shadow seemed to chase the boat and swallow the trees, touching them first, then meandering over the branches down to their very tips.

The red beams fitted athwart the bushes and water plants of the margin near us, and turned the bushes into moving gold, upon which and the gleaming lily-pads we would rustle suddenly, as suddenly leaving for the still water. A quick dropping shot of splashes in the shallows told us all of the startled muskrats as they tumbled into the water from the logs and bor-

ders. Their little black heads spotted the water all around the jack's radiance, vanishing, when out of the stream of light, with the quickness of thought.

We were now gliding across an opening formed by a creek, which ran into the main river—the Grand. Suddenly we heard a slight rustling close to the bank, and two or three light paddling sounds in the water. Our marksman raised his rifle and motioned toward a black thicket. The boat glided up, as if sentient. The click of our marksman's springing gun-lock followed; we saw two spots of pale fire in front of an immense black tree; our gunner caught his weapon to an aim; the figure of a deer, motionless as a sculptured image, with head turned toward the jack, started out; a rifle crack—the deer sank; the boat shot to the bank, and our rifleman, drawing his wood knife, leaped out. The deer scrambled up, fell, and then lay motionless.

"Its down among the rushes, oh! with that ven'son!" said our steersman, laughingly.

"'Tisn't nothin' else," answered our shooter, dragging the doe into the boat with her throat cut. "I sent her my 'spects right 'twixt the eyes."

"Old Hundred, and all the folks jine in," cried the helmsman.

"Oh! Susy was her name,
Sich a purty little dame—Zip!"

After this your humble servant took the rifle across the knee, and again we were skimming along the margin, our late marksman dipping without care, as no feeding-places were afforded by the bolder shores now presented.

On again we rustled; the newness, the picturesqueness, the romance of the entire scene, delighted us. Gliding as if by magic over these wild waters, hemmed in by the trackless forest; not a human creature (but our own party)

probably within leagues of us; not one human habitation; the stars our only watchers; our two companions, inhabitants of the wilderness, caring for or knowing little else than its sports and laughing at its hardships; the whole presenting such utter contrast to our usual experience of life, impressed us with the profoundest interest. But I must now relate the effect of our own prowess. We had now approached a low point covered with tall dense thickets. The jack-light played upon the edges, but it was not easy for it to penetrate far inward. Our steersman raised his hand as warning us to perfect stillness. We could hear our own heart beat. A light, quick smacking or chopping sound within the alders—an animal feeding! We raised ourselves cautiously. We peered on this, then on that side of the jack. Onward we went. A motionless deer, another doe, presented her graceful figure, with head toward us, immovable as if cut in illuminated stone.

We aimed with a tolerably steady hand and anxious eye—the bullet, with lightning quickness, performed its mission through the animal's forehead, which, with a leap high in the air, dropped earthward; a violent struggle for a few moments, and all was still. We leaped ashore as soon as we could draw our boat over some shallows, and performed with the knife the usual throat incision.

This is not a sportsman feat to boast of, for this mode of killing deer is not to be recommended for its skill and manliness. But it may perhaps be tolerated now and then for its novelty, and striking nocturnal scenery and impressiveness.

But to conclude our narrative of floating for deer: after this last shot we continued on, our steersman in his turn

taking charge of the rifle. We passed several low openings gliding along for a long distance. We peered on all sides of our jack. At last, another light paddling sound came, then a trickle or two of drops. Then the sound ceased and was instantly resumed. Our steersman saw, as he told us afterward, in a dense thicket two palish, but glowing objects or balls. A hissing sound was heard. He fired with lightning rapidity, and immediately with a keen shriek, a large black object burst from the bushes, and sailing over our heads became lost in the darkness.

Our old and most experienced marksman, who had killed in this night's excursion our first deer, now half asleep, roused himself, though with a good deal of unconcern, for the whole affair was nothing new to him, and exclaimed, "An eagle!"

We glided again for miles down the river to our camp. It was reached at length. Two more of our companions there heard us coming, and though they had no more idea of music than a brace of loons, raised with tangling voices and ear-splitting discord, fragments of the song beginning with

"Some love to roam
O'er the wild sea foam,
Where the shrill winds whistle free,
But a mountain la—"

"No, Ralph, you're wrong."

"But a chosen band,
In a mountain land,
And a life in the woods for me!"

(With a tremendous roar).

"Oho! ho! ho! ho! ho! ho-o-o-o-o!"

With a sudden drop into a long groan, and then a blast like a cracked trumpet, supplemented with the shrill squeak of an imprisoned pig, at the sight of our deer.

REMINISCENCES OF ENGLISH ANGLING.

The following description of fish and fishing in old England refers to what is termed "bottom fishing," and not to taking game fish with the fly. One of the choicest and most numerous fish there is the perch (*perca fluviatilis*) which abounds in fresh-water rivers, lakes, and docks for shipping. Our perch (*perca flavescens*) in this country is a distinct species, but is not much esteemed by the most skillful fishermen, who have a taste for better sport than they afford. The English perch has similar vertical dark stripes to the American above referred to. They, like the American and all this family, in which the famous black bass is included, take most readily the live minnow, shrimp, and sometimes the earthworm. In England they are found, also, in large quantities in the lakes and ponds of the country seats of the nobility and gentry. We, in our youth, took large numbers of them from a half pound to two pounds weight in the East India Docks, into which they came from the river Thames, close by. Its flesh is very white and the flavor sweet, and is esteemed "a dainty dish to set before" the Queen, and very light and wholesome, and physicians allow them to be eaten by fever patients. The Germans have a proverb, "More wholesome than a perch of Rhine." These fish abound in American waters chiefly in the north, and afford ready amusement to the untutored angler.

Another fish which affords much sport in England is the pike (*Esox lucius*), there commonly called "Jack," which, like "pickerel," is the diminutive of pike. The most common method of angling for him in England is either with a "ledger" (still fishing), or a "walking-bait" (trolling), both

best with a live fish-bait, and sometimes with a frog. Some use what is called a spring snap-hook, *i. e.*, a double hook so arranged with a spring that on the line being tightened, the hooks spring open, and seldom fail to fasten in the pike's jaws. Then there is trolling for this fish, as for the black bass, salmon, etc., with the spoon-bait, which is now well known. The pike at times, similar to the bass, etc., will not refuse a fly, if it be large and gaudy, especially in a warm wind that roughens the water. It is best to fish for him as for bass, salmon, etc., from two to four feet under the surface of the water. The pike, and mode of fishing for him in England, are very like that which is followed in America, therefore what we have said regarding him is quite sufficient here. The writer, in trolling, caught one at Wanstead Park, near London, which weighed twelve pounds and a half. There is a fish in England called the barbel (*Cyprinus barbus*), which, although almost worthless for the table, affords anglers there considerable sport and amusement. It is of the *Cyprinus* or carp family. We have not exactly the same species in this country, but our Sacramento "pike" (*Lavinia gibbosa*) approaches, perhaps, somewhat nearer to it in character and habits than any other, unless it be some of our species of suckers. The weight of the barbel is from two to eighteen pounds, though they are said to grow larger; they, as some say, having been caught in the Danube from six to twelve feet long. The writer has taken many of them in the Thames near Hampton Court Palace, the largest weighing nine pounds and three-quarters. These fish are caught on the bottom, with "lobworms," the place being baited the previous evening with balls of clay and worms intermingled. The angling is

done from a punt or skiff, fastened to its place with poles, and with rod and line down the stream. The barbel, as Izaak Walton says, "affords an angler choice sport, being a lusty and a cunning fish, so lusty and cunning as to endanger the breaking of the line." His baits must be clean and sweet, and the worms well scoured. Cheese is a good bait for him. Barbel fishing has many amateurs among English anglers, some of whom prefer it to every other sport of the kind; but, compared with salmon and trout fishing, it is but a dull amusement, for though they run large, and are a bold-biting, daring fish, like the Sacramento River "pike," there are too many of them; and though one does not fish for the gain of the thing altogether, yet it is a drawback on the fancy that they are good for nothing when you have them. "The least thing that a gentleman can do," says an American annotator on Walton's "Complete Angler," "who has taken a barbel of twelve pounds weight, is to take the hook out of his mouth, and let him run again."

(TO BE CONTINUED).

FISH CULTURE.

Forty years ago there lived in western New York a very plain and even humble citizen who was fond of fishing. During the season he would troll for pickerel in Irondequoit Bay, and when the time came for the capture of speckled trout of the mountain streams, he could be found rod in hand whipping the little brooks where the finny tribe disported themselves. In one of his excursions into Canada, pursuing his vocation, he observed the salmon make their nests in the gravel and lay their spawn. He saw the richly colored salmon eggs left to the mercy of floods

and freshets, and as tempting food to all kinds of predatory fish; he calculated how infinitely small the chance would be that any particular egg should survive all the vicissitudes that would beset it before it was hatched, and then how likely the young fry would be to fall victims to the larger fish. The result of his observations led him to believe that he could propagate fish artificially. Although pisciculture was not a new science, it was new to him. To make the experiment he purchased the control of Caledonia Creek in western New York, a bright and sparkling trout stream that rises from a spring, and running over a gravelly bottom for two miles empties into a tributary of Genesee River. Here he built his sheds, tanks, and troughs; here he experimented until he found he could take the spawn of trout, and bring ninety-seven per cent. of it to perfection. This demonstrated a great food problem to the world. His first venture of importance was to stock the Connecticut River with shad. The result was to rescue the shad family from destruction and to reduce the price from \$40 per hundred to \$3; to change the fisherman's lament from scarcity of fish to an overcrowded market. The work of Seth Green has now been extended throughout the country. Fish are becoming everywhere abundant and cheap; the better varieties are now being cultivated; barren streams and unprolific lakes are furnishing food to mankind; and if he is a benefactor who makes two blades of grass to grow where only one grew before, then Seth Green is also a benefactor in placing fish in deserted waters and bringing healthful food within the reach of all. What are our Fish Commissioners doing? We should be glad to hear from them. Ought we not to be receiving shad from our northern

streams? Ought not trout be more plentiful in our markets?

FISH SPAWN.—A few weeks ago 300,000 whitefish spawn were sent to this coast from Lake Michigan, by Prof. Baird of the United States Fish Commission, for shipment abroad. Of the consignment 150,000 spawn were sent to New Zealand, 30,000 to Japan, and the balance reserved for California and sent to the hatching establishments near Berkeley. 100,000 of the last mentioned were successfully hatched and placed in Lakes Donner and Tahoe. 100,000 eggs of the speckled trout were also received at the same time from New Hampshire, and of the lot 60,000 have been successfully hatched. There is another large consignment now in the office of Wells, Fargo & Co.'s Express, destined for Australia.

Selected Articles.

THE ROSE TREE AND THE PANSY.

A FABLE.

A rose tree in my garden grows,
And on it blooms the red, red rose;
With perfume sweet it fills the air,
And bright its hue, its form so fair.
And by its side a pansy lies—
A flower like wings of butterflies,
Of indigo, and white, and green;
Its colors interspersed are seen.

The sun was shining hot o'erhead,
When to the rose the pansy said:
"Your straggling, widespread branches cheat
Me of the sun's bright rays and heat;
So through the night in cold I lie,
And through the day for warmth I sigh,
All through your selfish, spiteful ways;
But pride, like other things, decays,
And so will yours, for die you must,
And, withering, crumble into dust."

Then quickly answered, stung with pride,
The rose, who thus began to chide:
"How dare you, little puny thing,

With such impertinence, thus bring
Against me charges quite untrue,
And wicked, base, and monstrous, too.
But so it is the world all o'er,
Impertinence is sure to bore
Its friends, and charge its foes with all
The crimes that e'er can them befall."
And thus went on from day to day
This grumbling, till at length away
The summer passed,

All winter through
The snow was deep upon the ground;
But, covered o'er, the pansy found
A shelter from the biting blast,
Which nipped the rose tree, and at last
Killed it outright and left it dead.
The pansy lifted up its head
When spring returned, erect with pride;
The mid-day sun his glances plied
Upon it in a streaming tide
Of glowing heat—it drooped and died.

MOVEMENT FOR A BOTANIC GARDEN.

The *Pacific Rural Press* contains the following:

"The idea of a public botanic garden is not a new one to our readers. It has been advanced by our correspondents, and has lately engaged the attention of our Legislature. The law-makers did not favor it, and without arguing as to whether they were right or wrong, we express an opinion that a matter of this kind is a very graceful subject for private enterprise and investment, if our rich men have the disposition to make it thus. This we learn they have, and we are informed that there is a reasonable prospect that a botanical garden will be established. We find the prospectus of the enterprise in the CALIFORNIA HORTICULTURIST. The following are proposed: To collect and cultivate specimens of trees, plants, and shrubs of every kind, whether useful or ornamental, that can be adapted to our soil and climate, and to arrange them in a botanical garden in such a manner as to make it a desirable place of public

resort as well as study, it being the intention to supply to scientific and educational establishments specimens of plants free of charge, for subjects of botanical lessons and lectures. With the garden it is proposed to connect a nursery, seed farm, etc., for the raising and cultivation of various products that are certain to yield a large profit, not only amply sufficient to cover the expenses of the garden, but also to make an excellent return to the stockholders. For this purpose it is proposed to purchase the establishment now known as the Exotic Gardens on Mission Street, opposite Woodward's Gardens, with all the stock, buildings, improvements, good will, and lease of land unexpired (nine years). The location of the Exotic Gardens is most favorable for the enterprise, and the business itself is so far established that the actual profits from rent, the sale of plants, seeds, and other products, place it in a paying condition. The enterprise, however, does not represent sufficient capital to carry out all the requirements. The most suitable locality for the Botanic Garden is in Alameda County in the immediate vicinity of the railroad, so that the garden might be easily reached, and the products be shipped without inconvenience to any part of the State. The amount of capital required for the purchase of the Exotic Gardens, with all the stock and improvements belonging thereto—the purchase of the necessary land in Alameda County, and for the improvements on the land—for laying out and planting the Botanic Gardens, and for carrying out all the propositions above mentioned—will not exceed \$130,000. For this purpose it is the intention to form an incorporated company, with a capital of \$250,000, divided into 2,500 unassessable shares of \$100 each. A large list of our prominent citizens is

printed as commendatory of the enterprise. So far as we can see it is a praiseworthy undertaking. We hardly look for much success to the business departments which are proposed, nor should we expect any very large dividends to stockholders. If the other features were successfully developed, we rather think the rich patrons of the enterprise would be fully compensated by the thought of having done a good thing for the public. Our money makers have wider resources from which to draw dividends than seed pods and flower pots. They will be content to have the institution self-sustaining, and to look elsewhere for dividends."

CALIFORNIA HARD TIMBER.

California produces naturally but few varieties of hard timber, and these not generally of very good quality. The California oak growing throughout the valleys and foot-hills is a kind of bastard white oak, very properly designated the scrub-oak. The old growth of this oak is brittle and valueless or nearly so for manufacturing purposes, and its use, never large, has been nearly discontinued except for wood. The new growth along our river bottoms is, however, much better, and will do for many kinds of wood; but the prejudice against California oak is so great that manufacturers do not find it to their interest to use it. We have some black walnuts of native growth along some of the rivers, but the tree is also of a scrubby growth, and while the timber is fair as to quality, the trees do not grow large enough to make it much of an object to gather them up and prepare the timber for manufacturing purposes. Hence but little of this timber is used. Of the beech and hard maple we have none, and none or very

little of the shag bark hickory, and but very little of the chestnut. Our ash is perhaps among our best hard timbers, but this is not of first quality, and the quantity grown is quite small. There are no forests of the ash, and only now and then a scattering, low, bushy growing tree along our river bottoms.

With so poor a record of the native hard timbers, it would hardly be expected that our climate would be good for any hard-timbered tree. One would naturally suppose that our climate would produce none but hard timber of an indifferent quality, however good the variety when grown in other countries. Experience, however, proves that such a supposition is not in accordance with the facts. On the contrary, all the hard-timber trees that have been planted and grown here have produced as good timber as the same varieties grown in other climates. The black locust grown here produces an excellent timber, equal to the best from the Atlantic States. The same is true of the white mulberry and the Osage orange. We have personal knowledge of these three varieties. The white mulberry for fence-posts is as durable as the red wood and as strong as the best of oak. It is not so good as the locust for manufacturing purposes, as when the bark is taken off or the timber cut up it checks badly. Every farmer, however, can raise all his fence-posts of this kind of timber, at a small cost. The tree does not grow high, but each one will make a single post at the age of six years from the seed. We have seen a large number of these posts—from one to two thousand—in use, some of which have been in the ground for three years, and show no signs of decay. The body of the tree may be used with bark on. For all the uses the farmer may want hard timber

for about the farm, the mulberry is most excellent. He can make all his whiffle trees of the small trees, leaving the bark mostly on, and they are stronger, and will last longer than imported oak. The body of a tree the right size grown straight makes the best pitchfork handle, stronger than any ash, and more springy and elastic. Rake and hoe handles can also be made of this timber grown on any farm.

The black locust grown here has been tested in Sacramento for wagon-wheel hubs, and after a use for eight or ten years is pronounced equal to the best grown East. The Osage orange is of a very similar nature to the mulberry, but not so liable to check, and it never shrinks. Experience with these three hard-wood trees, we think, may very safely be accepted as a pretty good proof that the scarcity of good hard-wood timber in this State is more owing to the varieties growing naturally here than to any unfavorableness of climate. As hard woods of all kinds are becoming scarce and expensive, may it not be well for our land-owners and farmers to look into the subject of introducing and growing hard wood as a matter of profit?—*Bulletin.*

EFFECT OF CLIMATE ON PLANTS.

Observations made during the Arctic Expedition have brought to light one or two curious facts in connection with the powers of growth possessed by different plants under varying conditions of climate. American research has proved that the seeds of certain plants, if gathered in one climate and sown in another, will germinate earlier or later, and with more or less vigor, according as the new climate is warmer or colder than the old. And even a perceptible change of climate is not required to

show these results; a difference of a few degrees only in latitude is sufficient to do so. For example, Wheat from Scotland, sown in the south of England, will germinate and ripen much more quickly than Wheat of exactly similar quality gathered in the South and planted in the same latitude in which it was grown.

This fact is of the utmost importance to agriculturists. To secure early-growing Wheat, it is only necessary to take care that the seed is gathered in a colder climate than that in which it was sown. The process is perfectly practicable, as it might be so arranged that the Wheat sown in the North should not be consumed, but preserved for seed for the next season in the South. The same thing is noticeable among other plants, and florists and horticulturists might take advantage of this circumstance to produce both earlier and stronger plants than they do now, without the appliances for forcing. Another curious fact is that seeds—especially Wheat—will stand an immense amount of cold without injury. Some Wheat left in the Polar regions by Captain Hall of the *Polaris*, in 1871, and found by Captain Nares, in 1876, germinated and produced healthy plants when sown under glass on board ship.

Captain Allen Young, of the *Pandora*, has on board his yacht a curiosity in the shape of a Rose tree, grown in England, which has been on board ever since he left England for the Arctic regions. When in the Polar cold the tree drooped, and, to all appearances, died; but as soon as the vessel reached a warmer climate the Rose tree revived, and is now in full bloom and in a perfectly healthy condition. The functions of life had been suspended while the tree remained in the cold latitudes, but they were not destroyed. This

fact is curious, as tending to prove that a tree which will stand frost at all will bear almost any amount of cold; and also that, if its natural growth and development are retarded at the proper season, the plant can not defer the revival of its development till the next normal period, but will continue its development at the first opportunity, which, in this case, after the intense cold of the Arctic regions, occurred in the more moderate cold—the comparative warmth—of an English November. It will be interesting to see if this plant blooms naturally at the proper season next year.—*London Country*.

HAVE A FLOWER GARDEN.

The farmer's home above all others should be surrounded with whatever is attractive and beautiful in nature. If the farmer has the land on which to raise substantial crops, he certainly should have the land for the embellishment of home. It is the farmer's boast that he deals with nature and nature's laws, and this claim to the intelligent and appreciative farmer has a real and elevated meaning—a great significance. The farmer plows the land, and sows and covers the seed, but nature makes that soil produce—the seed to germinate and grow. The bread we eat, the clothes we wear, and, indeed, nearly all we have in the way of administering to the necessities or comforts of life, are the joint products of nature and the farmer. To raise grain, meat, and other substantial articles for the sustenance of man and beast constitutes the prose of a farmer's life. If he has any poetry in him, he can appreciate the beautiful as well as the substantial. Nature has also provided a way for that poetry to find a living expression—a medium for that appreciation to be made mani-

fest. Some one has said that flowers are the poetry of nature. If there is an art in nature, then that art is exercised in the production of the delicate forms and beautiful colors of flowers. The farmer who has no flower-garden about his house affords nature no opportunity to address him or his in the beautiful language of poetry or art. The most wonderful of nature's laws to him and his have no form of expression. The farmer who has no flower-garden about his house, has no right or reason to expect the higher generalities of mind or soul in his children. It is said that circumstances make the man. It is certainly true that the surroundings of home have much to do in making the child. If those surroundings are pleasant and beautiful, they lead the child's mind in the paths of innocence and virtue. The flower garden is the least expensive ornament the farmer can surround his house with. It is the elementary alphabet of nature's laws and nature's teachings for his children—the first, or title page, to the great book of nature. If the farmer would make his home attractive to his children; if he would have them interested in his calling and inclined to follow his precepts and example, let him furnish them with the first inducements in that direction.—*Bulletin*.

HOW TO USE FLOWERS.

We often find the value and beauty of flowers lessened and spoiled by their unfitness, in regard to times and circumstances, with which they are often thoughtlessly or ignorantly used.

Who has not seen, at times, strange flowers chosen for adverse seasons or positions—some gay, laughing, flaunting Poppies, or Dahlias, put to the gravest most solemn uses, or the blos-

som from some plant like the Jasmine, placed to represent the decoration of some happy event. The button-hole of a swain decorated with a full-blown Peony, or Hollyhock, can only indicate—the more and bolder the show, the better. Some who read will probably think what I now write a mere affectation of sentiment, and ignore altogether the indwelling spirit of flowers. Call them so much form, and substance, and color, and scent, and nothing more, there is still a fitness or unfitness in the use of them.

The Camellia, for instance, who can think of it without visions of festive mirth, brilliant lights, shadowy forms of beauty, many forms of strength, with the lines of care and of speculation and of deep thought smoothed away? The Camellia is surely the belle of all flowers during the long winter season, gracing dinner parties, balls and concert rooms; gleaming out in rosy crimson streaks from flaxen hair, or showing off its depths of spotless whiteness among the dark braids of brown or black. How it shines out in dull, gloomy weather, prized by those who possess it, envied by those who do not! Yet who, with any depth of thought or kindly feeling, would ever take or send such to a sick friend—to one who in pain or weariness lay waiting for the soft summer months, and the dear summer flowers?

That pure white *Stephanotis* with its dark green leaves, waxy petals and delicate perfume, may live and bloom in the home of the mother of purity and honor, with her children; and perhaps by its gentle and refining influence, make stronger, more heart-reaching, the kind words of advice; or it may soothe the griefs which often in quiet lie heavy on the thoughtful spirit; but it is out of its fit place amid the noise, and

talk, and jest, and laughter, and ringing of glasses, in the tainted atmosphere of a revelry room, however noted the occupants may be of renown.

Again, small gardens and narrow borders are no such place for such plants as the Dahlia or the Hollyhock. They not only overshadow all other plants, but their roots absorb from others the moisture and food required. They are, when so placed, like the Upas Tree, within whose deadly influence fable tells us nothing would grow. In large grounds or places where a background of evergreens, or old dark foliaged trees exists, bold large flowered and foliaged plants, often splendid objects, show their beauty and form.

Turn we now to the Orange blossom, which through fashion and long usage has become known as the bride's peculiar flower, and if it were tried, perhaps the rule of seeming fitness could not easily be broken through, for each maiden in her turn would hold forth eager, longing hands for it on the eve of her wedding day, and perhaps think she was not safely and truly married if she wore it not. And yet it is not the fairest or the most bride-like of flowers. Our remote ancestors knew best why they fixed upon it; perhaps they had not a long list to choose from; and yet they had the Almond, Peach, Apple, and Plum, whose blossoms are more pleasing and graceful. The Orange flower petals are stiff, and its stamens appear as if they had no purpose in the world. Point out the Orange blossom to any young lady with a cultivated taste for flowers, and who does not know what it is like—never remembers to have seen it—and sure enough the exclamation will be, "Is that an Orange blossom? That? I wonder they should make such a fuss about it!"

Then the Rose, fairest and sweetest

of all flowers, whether it be the old Cabbage Rose or the latest, newest and best, which may be grown to a like perfection in the little cottage garden and in the rosary of acres; which is never out of place, never unfit, never unacceptable; which may adorn the shopkeeper's back parlor, or the merchant's palace; which the poorest as well as richest lady or maiden may wear with equal good taste; which all may give and all accept, whatever their difference of position, or fortune, or culture may be, and which is never more touching, or possessed with a deeper meaning, than when offered by the poor to the comparatively wealthy; surely, of all flowers, it is the richest, the most beautiful, from its earliest stage of formation to the drooping down of the last petals. No wonder it is a favorite, for it adapts itself to changing circumstances, and offers its blooms and perfume without stint or measure; and even in their dying state the flowers are said to possess a soothing, healing influence. In sheltered nooks, in hundreds of gardens, the varied roses open wide their blossoms almost before the snow has melted from the neighboring hill-tops; and bushes covered with a multitude of buds, wanting only a little dry sunshine to make them burst out as if to adorn an Indian summer, which they often do, continuing in full bloom in many sections until Christmas. No other flower is equally fitted for all times and circumstances. It becomes the bride of earth or heaven.

Some few there are that are even better suited to the house than out of doors, and when submitted to the influence of artificial heat and light, add brilliancy and intenseness to their colors. Again, there are flowers native to our wilds, that brought into the garden, no matter how carefully cultivated, fade and

die away. They are as much unsuited to the open air and broad sunshine as the person reared in the country is to the city; the confined views, the masses of brick and mortar are not in consonance with a mind tutored to the grasping of a beautiful landscape and all of Nature's varied creations. Better therefore to leave the wild flower in its native home, where it blooms and bends gracefully on its thread-like stalks, bravely breasting rain and storms. There it flourishes without help or care, a perpetual gladness; and the bees find in it shelter and food.—*Correspondent Country Gentleman.*

TREE PLANTING IN THE SAN JOAQUIN VALLEY.

The farmers of the San Joaquin Valley should pay as much attention to the planting and successful growth of trees as they do to the cultivation of the cereals. There is every reason and argument in favor of it, and no objection against it. If cordons of trees a few miles apart were planted across the valley, a perfect barrier and wind-break would be formed, preventing the disastrous results that are frequently felt in the grain fields in the drying, withering, scorching north winds that come in that critical period when the young grain is in milk and before it has reached a safe maturity. A single year's loss in this valley from the effects of the north wind would be sufficient to plant all the trees that could be induced to live for years to come. The lack of firewood is another inducement for tree planting, and the shade that they would give to stock would go far to alleviate their sufferings during the heated term, when the valley is like a fiery furnace. The trees plentifully and systematically planted would also effect such a change in the climate of the valley that its bar-

renness would be transformed to fruitfulness, and moisture would be retained in the soil throughout the year. The present is the most favorable season of the year for tree planting, and its prosecution should be given every encouragement. Large areas in France have lately been planted with forest trees on tracts of land that have become unfruitful for other purposes, and it is said they are flourishing finely. It is also reported that 5,000,000 hectares, or 12,350,000 acres, equal to one-half the area of Ohio, have become unproductive as agricultural lands. Pine trees, without any cultivation and a very inexpensive supervision, can be made to grow upon these barren acres, netting about \$2 50 per acre of annual profit. This would add to the productive capacity of these lands about \$30,000,000 per annum. Other trees have been planted with similar economic results, and now landed proprietors are looking to tree planting as a means of utilizing their unproductive acres.—*Stockton Independent.*

GERMINATION FROM OLD SEED.—In the silver mines of Laurium, only the slags left by the ancient Greeks are at present worked off in order to gain, after an improved modern method, silver still left in that dross. This refuse ore is probably about two thousand years old. Among it, the seed of a species of Glaucium, or Poppy, was found, which had slept in the darkness of the earth during all that time. After a little while, when the slags were brought up and worked off at the melting ovens, there suddenly arose a crop of Glaucium plants, with a beautiful yellow flower, of a kind unknown in modern botany, but which is described by Pliny and others as a frequent flower in ancient Greece.—*Lon. Examiner.*

Editorial Portfolio.

OUR FRONTISPIECE.

We have the pleasure to present our patrons with a fine and correctly colored picture of two of the best varieties of the *Diospyrus Kaki* (Date Plum), or Japanese Persimmon. We have regarded the introduction of this new and remarkable fruit into California so likely to be important and valuable to us, that we have described it pretty fully in two other articles in the present number of our work. In this place we will add a few other facts that have come to our notice regarding this really wonderful fruit. The trees are as durable as the Apple or Pear, remaining in full vigor for about 100 years. It seems to thrive best in a gravelly or rather light soil. The Japanese state that it grows best without allowing any fresh manure to come in contact with its roots, although this sort of manure would probably be beneficial applied to the surface of the ground above the roots. The wild Japanese Persimmon is unlike the American, as it is hard when ripe, but juicy and sweet. It is propagated by being grafted on the inferior varieties. The best kinds are found in the interior of Japan, which is chiefly the reason why it has not been introduced into this country until now. The interior was comparatively unknown till lately, as persons could travel there only by express permission of the Government. The Quince, the Peach, and the Plum were imported into Japan some years ago from foreign countries. The Pear was imported from China, but it was a poor sort. The natives, singular to say, eat most of their fruits in a green state, or pickled in brine, and they do not seem to appreciate fine and ripe fruits nearly so

much as we do. We have tasted the fruit in the shape of a fig, sun dried, and without the addition of sugar. We find it sweet, rich, and yet delicate and pleasantly peculiar in flavor, and are not surprised at the fruit in all its forms being so much liked both in Japan and here.

When grafted, the tree bears in four years, but a seedling can not be depended upon for any particular variety, and takes ten years before fruiting.

HORTICULTURAL PUBLICATIONS RECEIVED.

We are in receipt of a copy of the "Annual Register of Rural Affairs for 1877," published at Albany, N. Y., by Luther Tucker & Son, and mailed to any address for the nominal sum of 30 cents. It is the oldest (and now the only) publication of the kind, and contains 150 pages of practical matter, interesting to every resident in the country, illustrated with no less than 140 beautiful engravings, almost all original. We notice particularly a capital article on "Practical Ventilation," which discusses this all important topic in a clear and at the same time scientific manner, giving fully illustrated descriptions of all the improved systems. Elaborate almanac pages are prefixed, and a very useful feature is the "Farmer's Register," which gives the addresses of all the reliable dealers in every thing a farmer needs to buy—live stock of all kinds, seeds, implements, nursery stock, etc.

"Collie & Stewart's Price Catalogue of Trees, Shrubs, Plants, Roses, Bulbs, etc.," cultivated both at Lone Mountain Nurseries, Post and Geary Streets, between Devisadero and Broderick, and at an extensive establishment in San Rafael. Office and salesrooms, 18 Post Street. This long and favorably

known firm has an extensive business, and well deserves the patronage of the public from their practical knowledge of horticulture, and their excellent plans of laying out grounds and gardens.

"D. M. Ferry & Co.'s Seed Annual for 1877, of Garden, Flower, and Agricultural Seeds." This firm are seed merchants, growers, and importers, at Detroit, Michigan. It is a very handsome catalogue with colored engravings and beautiful wood-plates of flowers and vegetables.

"Illustrated Catalogue of Plants for 1877," from Wm. A. Harkett, Dubuque, Iowa. Illustrated and complete in varieties of all flowers, shrubs, etc.

"Descriptive Catalogue for 1877," from Wm. Rennie, Toronto, Canada. Neat and handsome, with fine cuts of flowers and vegetables, and printed on nice rose-tinted paper. The Grand Prize medal at the United States Centennial was awarded to the proprietor for garden and other seeds.

"Catalogue of Flower Seeds and Bulbs for 1877," E. Wyman, Junior, Rockford, Ill.

"Spring Catalogue of New and Rare Plants for 1877," including greenhouse and bedding plants, grown and for sale by Storrs, Harrison & Co., Painesville, Ohio. This catalogue is beautifully embellished with fine engravings of flowers, bulbs, etc.

"Schedule of Prizes ordered by the Massachusetts Horticultural Society for 1877."

WILD FLOWERS.

The wild flower is the earliest thing of beauty which every child that treads the hill, mountain, or canyon in the country, or wanders by the brookside, takes to itself. It loves the flowers as

it were by instinct; and this love is the best and surest portal to the memory; cultivate it, and you will find how quickly the young will learn and remember, not the names merely of their favorites, but much of their botanical history, provided only that these things are taught, not as a school-room task, full of long names and technicalities, but as the pleasant out-door lesson, in which the affections are engaged as well as the intellect. Thus may be laid in the young mind a love for the natural sciences which will never forsake it, and which may, in after years, prove a solace and resource amid the cares of life's battle, or, perchance, a real service in that battle itself. Nay, more, the time is coming fast when no man or woman will be considered properly educated who is ignorant of the leading facts, at least, of the natural sciences, and when the knowledge and study of these natural revelations from the great Maker and Author of all will rank second only to a true and rational religious feeling, and correct moral action. A subject, moreover, in which, as in all branches of natural history, is involved much instruction, as well as of interest and amusement. Instruction far beyond the mere knowledge connected with its immediate objects; instruction to the young mind in habits of accurate observation directed to special purposes in the power of distinguishing minute distances, and in the faculty of perceiving general resemblances. Such power of discrimination is a common want, and in no way is it better supplied than by the cultivation of natural science in almost any one of its departments. This attention to the study of our wild flowers can hardly be better employed in any other way as a wholesome mental discipline for our young folks.

A NEW FRUIT FROM JAPAN.

We consider this hardy fruit tree a very desirable acquisition to our pomology, to be planted at that elevation from low valleys most free from frost, although it is most likely that it will stand any common frosts here. In Japan this kind is said to be unexceptionably one of the finest and most valuable of their fruits. The people seem to use it as freely as we do the Peach, and in almost as great a variety of ways. At all seasons of the year they may be bought preserved in the same manner as Smyrna Figs, and looking not unlike them, and everywhere enter largely into the domestic economy, as well as internal commerce of the people. It has been crossed and grafted in, and recrossed until it is to Japan what the Apple is to America; and, in season, is comparatively one of the best and most useful fruits of the country. The fruit exhibited at Mr. Trumbull's seed store on Sansome Street in this city is about as large as a medium sized Orange or Apple. The variety of this fruit in Japan is remarkable, though but two or three varieties, to the best judges there, seem to be especially desirable for cultivation in California. One of them is a large round-shaped fruit something in shape like the Rhode Island Greening Apple, hard fleshed, and is mostly eaten as one eats an Apple, having many of its characteristics. Its color is rich golden, or rather, perhaps, orange, and the meat juicy, vinous, and firm. It ripens in November, and keeps well until March. We think it in all respects a desirable fruit for such climates as this State, Georgia,



DIOSPYRUS KAKI, OR JAPANESE PERSIMMON.

South Carolina, Florida, and a portion of Alabama.

The second variety is described as more oblong than round, resembling in its shape almost exactly a minnie rifle ball. This is a deeper, darker shade than the other; soft, sweet, and custard-like, and is usually eaten with a spoon as one eats a custard. These have been seen, we are informed, in Japan as large as an ordinary sized tea-cup, two to two and a half inches in diameter, and from point to top from three to three and a half inches. This fruit ripens the last two weeks in October, and is the variety mostly dried and

prepared like Figs for market. It is evidently a rather delicate fruit, and very much liked by those who are fond of sweet fruits. The tree is rather of upright growth, and, without reference to fruit, is valuable as an ornamental tree.

WORK FOR THE MONTH.

Evergreens may be trimmed at almost any time, although we consider the months of March and April particularly favorable to this operation.

Gooseberry and Currant bushes should have been pruned two months since, but care should be taken to destroy all young shoots making their appearance from the roots. These take away a good deal of nourishment from the plants, and also form too good a protection for all sorts of insects, slugs, cutworms, etc.

In the cultivation of Raspberries, growers must bear in mind that it is the last year's growth which will produce the fruit of the coming season; it is therefore most important that not more than from three to five young shoots should be allowed to develop themselves; more than that number will weaken the plant, and prevent the obtaining of thrifty stocks for the next year.

Blackberries should be cut back severely to secure superior fruit.

The planting of additional vegetable seed should be delayed until the weather is more settled; clayey soils in particular are unfit at present for the reception of any kind of seeds. The weather has been very favorable, however, for the transplanting of Cabbage, Cauliflower, etc.

The planting out of ornamental and shade trees has increased considerably during the last month, but we are sorry to say that they consist chiefly of

Eucalyptus and Cypress. We are of opinion that very little judgment is used in the selection of trees for ornament. While we have advocated the planting of Eucalyptus as a useful timber tree in some situations, as near railroads, and public ways, roads, and other thoroughfares, and where rapid growth is a desideratum, we insist upon the superiority of many other species, as well as some fruit trees, for ornamental purposes. Fruit trees of themselves form good screens from winds, and there seems no necessity for so much employment of Monterey Cypresses and Eucalypti for that purpose. Walnut trees in about eight years will make very handsome trees, and produce well, and the Fig is fast growing and immensely productive, and the fruit is becoming more and more in demand, and the surplus makes capital fattening for hogs. W. B. West, of Stockton, one of our most experienced nurserymen, strongly urges the planting of the Fig, Pecan, Walnut, and fruit-bearing trees in many situations, in preference to the Eucalyptus, Willow, or any such stuff. He says:

"Don't let any nurseryman humbug sell you Monterey Cypress or Eucalypti for hedges; they must, of course, to attain such great growth, use up a great deal of land. I see that the man on the south side of my lot has a row of Poplars on my line; they will raise borders enough for the whole colony. I never saw any use for a hedge around a vineyard. They are better and less liable to mildew without it. Fig trees, Peach, Apple, etc., certainly do not need protection. Try to induce every one to plant only useful trees, except on the avenues and a little ornamental patch before the house. Have the shade-trees around the house Fig or Mulberry, or something equally as

good. I am led to this train of thought by seeing so many of my neighbors' improvements, such as Eucalyptus, 60 feet to the first limb, affording about as much shade as a telegraph pole; Lombardy Poplars, ten years old, all used up by borers, and falling every gale—all their beauty gone. My Walnuts, six or eight years old, are fine; Pecans are beautiful trees like the Hickory. I have them four years from the seed 14 feet high. The American and Persian Mulberry do well with you; are good shade and fruit-bearing trees. The Fig is my favorite, and they are finding a market in spite of the prejudice against them. More California Figs have been sold this year than ever before, and at better prices; they will pay to feed to hogs. The amount of Figs which an old tree will bear is wonderful."

The *Alta* says:

"This is good advice under the circumstances. It is addressed to the founder of a horticultural town, supplied with a good soil and an abundance of water, and laid off in small lots, designed to be the home of a separate family. All the streets are to be lined with trees, which the superintendent selects. The Fig is an excellent tree; the State has not one-tenth as many as she should have. The Olive is nearly as good in every respect, save its slowness of growth. The Eucalyptus, Monterey Pine, and Monterey Cypress have their merits, especially in places where fruit-trees are not wanted; but they require much space for their support.

"The Central Pacific Railroad Company intends to plant Eucalyptus on both sides of its roads in the fertile valley lands."

Never allow the surface of the soil, in a pot or in the ground, to be long without stirring, unless it be naturally very open, as is the case with peat.

When you pot a plant remember to give nearly one-fourth in height of crocks (broken pots), or other drainage, to the other three, or a little more of compost or soil, and cover the drainage with a little gravel or coarse soil the size of shot, to keep the compost from getting down into it and choking it.

Train or support all your plants in a natural manner. Climbers do not look well hanging about, and trailing plants should be made to climb. Grow each as it would grow naturally, and supply only in such cases what nature does not.

Rapid growth makes a mild flavor, slow growth a strong one; therefore grow vegetables quickly, and fruits moderately. The exceptions are only where size is valued higher than flavor.

When stable dung, intended to be used for manure, can not be turned into the soil at once, but has to be left in heaps, it should be mixed with an equal quantity of soil, and the whole heap be covered with about three inches more, to absorb any ammonia that may be thrown off. Never leave stable dung about in heaps, if it is intended for manure. The pungent smell observed near one arises from the ammonia (its most powerful fertilizing property) passing away into the atmosphere. The heap will rapidly shrink as the gases formed by decomposition escape into the air, and the residue will be comparatively worthless, as the excessive heat engendered by want of proper care will have caused the heap to "burn." To prevent this, and to secure a gentle steady heat, for forming a hotbed and similar purposes, the heap should be frequently turned, shook out, watered if too dry, and each time the outside should be turned in.

When plants are to be taken up from the open border for the purpose of potting, they should be prepared for the

change by thrusting down a sharp spade or garden trowel all round a circle of each plant the size of the pot intended to be used. The plants should be watered well, and sheltered if necessary; and in the course of a week or two new roots will have formed within the ball of earth left undisturbed, and the potting may be done with safety.

Carefully preserve the fallen leaves of trees, and procure as many as you can; add to them the sawdust from about your firewood trestle, and then an equal bulk of cattle-droppings; and when the whole are mixed and rotten you will have a valuable vegetable mould, forming a special manure for Azaleas, Rhododendrons, etc.; and by adding a little sand and some good garden soil, you will have an admirable potting earth.

FRUIT CULTIVATION AND REPORT OF FRUIT AND VEGETABLE MARKET.

The best kinds of Peaches, and the most proper mode in the cultivation of Peach trees is very important, as that fruit is a great favorite with the public, and there are too many inferior sorts, and too little judicious cultivation in vogue among growers and fruit raisers. There has been but little change of late years in the list of reliable and standard fruits. The liability to rot in Hale's Early, just at ripening, has greatly lessened its value, and we recommend caution in planting it extensively. Cooledge's Favorite is a reliable and valuable sort in most localities. Crawford's Early has a wider approval in the country than any other Peach. Crawford's Late stands well, but is rather an indifferent bearer in some locations. The old Red-cheek Melacoton is usually regarded as superseded by these, but still has a good deal of merit as a market sort. Stump the

World is not too late for our latitude, and is an excellent Peach. Oldmixon Freestone succeeds well here, and the Large Early York is a popular earlier sort. Among the new sorts, Amsden and Alexander are well worth trying on a moderate scale, on account of their extreme earliness combined with desirable qualities. We advise our fruitists to write East to a few well known and reliable nurserymen (such as are advertised in the HORTICULTURIST during the last three months), inclosing postage, for their retail or descriptive catalogues, from which may be ascertained the most popular sorts, prices, etc., or our cultivators may apply to some of our best nurserymen in California for the same purpose, these latter having the great advantage of the test of the California soil and climate. With regard to the culture of Peach orchards, the best method is to plow shallow, or to only a moderate depth in spring before the buds start, and after that to use the harrow and cultivator, hoeing immediately round the stems of the trees. On your richest lands, some small mutilation of the roots in early spring will do no harm, but it should not be done when they are in leaf and growing. The best Peach orchards we have seen in this State were kept in cultivation—with hoed crops when the trees were small, and with no crop when they became large. The depth of the plowing must depend on the character of the soil; if shallow with sterile subsoil, the plowing should be shallow, but on a deep, rich soil, common plowing will do no harm. The treatment must be adapted to the condition of the trees; if they are vigorous, and throw out annual shoots a yard long, they are growing well enough; if the growth is much less, you should either cultivate more or top dress with manure.

The "Cherry" is our best Currant. It is very large, productive, tart, and unrivaled for jelly, for which purpose it is raised in some of our valleys in immense quantities, and they find a ready market. Their large size and fine red color make them very attractive in the show windows in the stores, or in our markets. The bush grows short, jointed, and very stout, and on every bush is one or more limbs of the last year without growing buds. This is a sure sign of the genuine variety.

The White Grape Currant is not so profitable, and not such a bearer, but an excellent fruit for the table and for hand eating, being pleasant and not very acid.

Currants prefer a cool and rather heavy soil, well manured and cultivated. These two latter conditions are absolutely necessary to insure a good crop; also must the three-year old wood be cut out, the young wood bearing the best crops.

The Black Currant is now seldom grown, as very few people like that peculiar musky flavor. It used to be raised for jelly, but this, too, has to some that disagreeable taste.

Of wild Gooseberries we have quite a variety in the woods in California. We saw some very large ones near the Big Trees, but upon tasting they were found nothing but seeds and a thin shell. The Houghton and Downing Seedlings are the most profitable ones for the market. The English kinds are difficult to raise, requiring a peculiar soil, climate, and cultivation to keep them free from that sad pest, the mildew. In one or two localities in Napa Valley, and a few other places, they are grown successfully, and, when perfect, they obtain a large price in market for the desert.

The prevalence of warm and pleas-

ant weather during the second week of last month (February) had a perceptible effect upon the vegetable market, in bringing forward new varieties, and increasing the receipts of others. The first Cucumbers came to hand early in the first week of February, and brought 50c. to 75c. each. They were of course raised under glass, and we have seen some very fine ones raised very early in the season at Mr. Harmon's beautiful place and residence, Oakland, by Mr. Turnbull, the skillful superintendent of his garden and conservatories. Asparagus and Green Peas came forward freely about the same time, and prices were lower. Potatoes were plentiful at \$1 to \$1.50 per 100 lbs., by the sack. New Potatoes, 3c. to 4c. per lb. The market was never so heavily stocked with California Oranges as at about the first and second weeks of last month. The generality of them were small, thick-skinned, and rather acid, and bore no comparison to the Mexican, which arrived here early in January. Toward the end of February these California Oranges commenced to improve in size, were thinner in the skin, and much sweeter, and thus the quality improving there was no difficulty in disposing of this late crop at remunerative rates. Apples continued abundant at \$1 to \$2, but choice Pears were scarce, and retailed at \$3 50 by the box. The best Apple at this time of the winter is the Newtown Pippin, which does not become so speedily mealy as most other kinds, and retains its juice better. The best Pear and the juiciest is the Winter Nelis. It possesses a high and rich flavor, and is in great demand among the best judges of fruit. It keeps juicy for a long time, and is one of our best winter Pears.

Owing to the mildness and geniality of the weather the crop of early vege-

tables about the 23d of last month (February) was brought forward rapidly. Asparagus was much increased in quantity and improved in quality, with some considerable decline in prices. Some more Cucumbers made their appearance since their first coming in, but their cost was much of the fancy order. Potatoes continued plentiful at \$1 to \$1.50 per 100 lbs. by the sack, delivered. New Potatoes, in small quantities, were 3c. to 5c. per 100 lbs. The incident of most interest in the fruit market the third week in February was the arrival of the first Strawberries of the season. The consignment came from Santa Clara County, and consisted of two pounds. Apples were unusually plentiful for the season, selling by the single box at \$1 to \$2. Pears were scarce, notwithstanding that the last crop was very large, a condition of things due to heavy shipments to the Eastern States. Oranges and other semi-tropical fruits were abundant at previous figures.

About the beginning of this month (March) a reduction of prices took place as usual at this season of the year, in almost all of the varieties of vegetables. Asparagus, Green Peas, Rhubarb, and Mushrooms were all more plentiful. Only a limited supply of Cucumbers made their appearance during the first week of the month, but prices for them continued high. The price of Potatoes was somewhat firmer, though the best could be obtained by the sack at \$1 to \$1.50 per 100 lbs., delivered.

That standard paper the *Commercial Herald and Market Review* furnished on the 1st of March the following report:

The first Strawberries of the season arrived during the past week; they were grown in the open air, and came from Santa Clara County. The consignment consisted of two pounds only,

and brought \$2.50 per lb. Reports from all parts of the State indicate that the present outlook for a large fruit crop never was more favorable. Winter Apples are plentiful. The steamers Ajax and Geo. W. Elder from Portland brought 3,122 boxes of Oregon Apples. Sales on the wharf at auction by the invoice ranged from 50c. to \$1.25 per box—averaging 80c. to 90c. per box. Consignments of Oranges from Los Angeles by railroad and steamer continue to come forward freely, and they all find ready sale, especially those well selected. Limes are a shade better. Our vegetable market shows a noticeable improvement in various supplies now coming forward freely, particularly Asparagus. More Cucumbers have come to hand. The "Champion of England" Sweet Peas are to be seen at all the stalls. New Potatoes are more plentiful. Apples—Choice, \$1 to \$1.50 per box; common, 40c. to 60c. Eastern Cranberries, \$15 to \$17 per barrel. Pears, choice, \$2 to \$3 per box; cooking, \$1 to \$1.50. Oranges—Los Angeles, \$8 to \$30 per M. Lemons—Sicily, \$7 to \$10 per box; Los Angeles, \$10 to \$15 per M. Limes, \$6 to \$10 per M. Bananas, \$2 to \$3.50 per bunch. Pine Apples, \$6 to \$8 per dozen. Cocoanuts, \$5 to \$6 per 100. Dried Fruit—Apples, 4½c. to 6c. per lb.; Peaches, 7c. to 10c. per lb.; peeled, 16c. to 18c.; Pears, 7c. to 8c. per lb.; Plums, 3c. to 4c. per lb.; pitted, 12½c. to 13½c.; Prunes, 13c. to 17c. per lb.; Figs, black, 5c. to 7c. per lb.; California Raisins, \$1.25 to \$2.25 per box, \$1.50 to \$2.50 per hf box, \$1.75 to \$2.75 per qr box. Vegetables—Cabbages, 50c. per ctl.; Cucumbers, \$4 per dozen; Asparagus, 10c. to 12½c. per lb.; Marrowfat Squash, \$12.50 per ton; Green Peas, 7c. to 8c. per lb.; Sweet Peas, 10c. to 12½c. per lb.; Garlic, 1½c. to 2c. per

lb.; Mushrooms, 6c. to 10c. per lb.; Carrots, \$6 to \$7.50 per ton; new Potatoes, 3c. per lb.

DON'T ENCOURAGE THE ENGLISH SPARROW.

Some years ago the English sparrow was imported into New York for the purpose of clearing the trees in the parks of caterpillars. These birds did good service. They were isolated, and not having any fruits within reach they fed on worms, in fact, cleared the trees of caterpillars. Some time ago the same bird was introduced in this city, and took possession of Portsmouth Square. He has been quite at home here, living upon insects and such scraps as he could pick up. But the English sparrow will not eat insects when he can get grain or fruit. It is the most quarrelsome of birds, resembling the blue jay in his antagonism to all other birds. The sparrow breeds rapidly, is a gross feeder, and one of the most destructive fruit birds known to ornithologists. He drives away the whole class of insectivorous birds, and then riots on fruit as long as it can be found. Now, with these facts well established, the sparrow is a bird not to be domesticated or encouraged anywhere except in the public squares of large cities. In the country he will turn out to be a pest which the farmer, especially the fruit-grower, will only be too glad to have exterminated.

It is said that the Superintendent of the Plazas has application to send these birds to the country, and that one of the more recent applications is from Sonoma County. Now, every fruit-grower in that county has an interest in keeping these birds out. They will do a thousand times more mischief than enough to balance all possible gain. Wherever the noisy, quarrel-

some English sparrow is domesticated, the whole thrush family disappears. They can not live together. The thrushes are a very numerous family, and include nearly all the best song birds of California. These are all insectivorous birds, including the whole family of linnets, which are a better kind in every respect, and much more desirable about a house or garden than the English sparrow. In Australia, where the latter has been domesticated, he has been found to be a pest, which with the rabbit, which was also imported, fruit-growers and farmers are considering now how to exterminate. These facts ought to be carefully considered. Whoever introduces the English sparrow to a country town or ranch, introduces a nuisance of an aggravated kind. This bird thrives better than any other in the parks and public squares of a large city. There let him remain. But the seventeen-year locust and English sparrow are not wanted in the country.—*Bulletin.*

CALIFORNIA GRAPES.—Among the future industries of California Grape culture is destined to take an important place. Our soil and climate are especially favorable to the development of this industry, and the astute vineyardist who selects the choicest varieties, and sets aside all those with inferior qualities, is laying the sure foundation for financial success. While speaking of this matter we call the attention of vineyardists to the superiority of the Muscat over the Mission Grape. For table use, as a fruit for curing, and as a fruit for wine making the Muscat is far in advance of the Mission Grape, and it commands in market at least double the price of the latter; and yet in a vast Grape producing region the Mission Grape is almost wholly under

cultivation, when with much larger results the Muscat might be as easily grown. There is no comparison between the wine made from the Muscat Grape and that made from the Mission. If wine made from the former was abundant, that produced from the latter would be an absolute drug in the market. The Muscat also possesses peculiar fitness for raisin-making, and last season sold readily for that purpose for very nearly \$20 per ton. And if it will with almost absolute certainty command that price, why cling to the inferior Mission Grape, which will yield, at most, not over half that sum? The Muscat may be substituted by degrees, till finally the inferior Mission Grape shall be entirely supplanted by the invaluable Muscat variety. When that time arrives California will rival the Old World in its rich wines and unlimited supplies of tempting native raisins.

MECHANICS' INSTITUTE FAIR.—The premium list and rules for the Twelfth Industrial Exhibition under the auspices of the Mechanics' Institute, to open on the 7th of August next, and continue for one month, have been published in a pamphlet. No charge is made for space, and reasonable quantities of steam and water are to be free for exhibitors. The premiums, which will number 709, including 600 medals, and the remainder money prizes, will be given for merit only. These money prizes are generally in sums of \$5 or \$10, and are to be awarded for flowers, ornamental plants, fruits, vegetables, hairwork, needlework, embroidery, patterns, shellwork, canned fruit, jellies, and pickles. The two largest cash prizes, \$250 each, are offered for the best painting in oil by a local artist, and for the best display of paintings by any exhibitor.

Editorial Gleanings.

TROPICAL FRUITS IN NAPA AND SONOMA COUNTIES.—The Santa Rosa Democrat has an article on the cultivation of Oranges, Lemons and Almonds in Sonoma and Napa counties. That Almonds will grow and mature well in the thermal belt found in the mountains of these counties, we think, is beyond question. In the valleys, where late frosts occur, the Almond crop has sometimes failed, but no failure is recorded in the higher altitudes. The fact should be extensively known and acted upon. No more profitable crop can be grown than Paper-shell Almonds. At eight years old the trees yield from 200 to 300 pounds each. From 150 to 200 can be set out on an acre. As the Almonds fetch from 20 to 30 cents per pound in the United States, the annual profit on an acre of full-bearing trees will be seen to be very considerable. In Napa County experiments have been very successful. We recently mentioned the growth of Oranges in the open air in Napa City. At an elevation of 1,000 feet above the valley, however, fruit of all kinds grow to perfection. A visit to Napa Soda Springs will convince any one of this fact. Within a radius of twenty five feet at the Springs may be seen growing the Pride of China, a Plum tree, a Rosebush, Grapevine, Oleander, Eucalyptus, Cypress, and Pear trees. This shows the genial character of the climate. The Oleander, which in the East is a pot plant, here grows in the open air to the size of a tree. Oranges mature in the open air at Napa Springs, the golden fruit showing prettily all the year among the green foliage.

HORSE RADISH.—A good way is to plant in rows two feet apart, placing the sets eighteen or twenty inches

therein. The soil should be deep and rich. The sets are pieces of the small roots which are cut off of the main root in preparing it for market. Four or five inches is a good length for sets. They should be covered about two inches, end up. To dig, trim, and wash 150 pounds is a fair day's work for a hand. The quantity which dealers buy at one time for retailing is small, because it dries up quickly when out of the ground.

CHINA has its big trees as well as California. About thirty miles from Nikko, an avenue of Sugi, or Cedar trees begins, and, with an occasional break where there is a village, it reaches the whole distance to the shrine of Lycyas—the longest avenue of shade in the world. These great trees are from five to seven feet in diameter at the base, and tower without a branch forty or eighty feet, and then lift their heads forty or fifty feet higher. They resemble the giants of the Yosemite. The trunks are faultlessly straight, and the bark is deeply veined. There are about thirty thousand trees on this avenue, and all of them were planted after the foundation of the shrine, about 250 years ago.

AGE OF THE "BIG TREES."—Now the scientists are quarreling over the age of the mammoth Sequoias of California, some trying to make out that there are specimens which are at least four thousand years old, and others claim that the biggest of them are only twelve hundred to fifteen hundred years. Well, gentlemen, suppose we cut off two thousand years from the age of the specimens now living, how many thousand years did it take to make the soil beneath them, or how long ago were the ancestors of the present race of

trees created? The present growth of saplings, however old, are but the descendants of a much older ancestry.

HOW TO PACK RIPE PEACHES.—Quite as much pleasure has been felt upon being informed of the satisfactory condition of such soft fruits as ripe Peaches and Nectarines, after a journey of 800 miles, as in winning a well-contested prize at a flower show. The plan which has proved perfectly successful, and which is now invariably followed whenever fruit is sent by rail, is to wrap each bunch of Grapes or fruit of other kinds in soft tissue paper, surrounding it with a slight padding of sweet bran as the fruit is placed side by side in a box. The paper is put upon the fruit in plain folds, and not twisted into hard corners, which may press into the next fruit and spoil it. Much care is taken to have each fruit thoroughly enveloped in bran, which is also settled into as compact a mass as possible by slightly jarring each box upon the packing bench after the top layer is put in, and when it is quite full, a sheet of paper is put upon the bran, and the hinged lid closed by hooks and eyelets of copper wire, and securely corded. If this excellent old method is only done correctly, all risk of failure is avoided.—*London Journal of Horticulture.*

TO VINE-GROWERS.—We would caution the owners of vineyards not to be in too big a hurry to prune their vines. If pruned thus early, the first sap that begins to flow will enter the buds next below the point where the canes are cut off, swelling them, so that the very first few warm days they will burst and throw out foliage and fruit spurs, and the crop for the season will be gone. These open and dry winters are the very ones in which Jack Frost lingers late in

the spring, and in which he generally does the greatest damage. It is safer to defer pruning the vines till all danger is past. Or, if it cannot be done consistently with business, then go through the vineyard doing the larger portion of the work, but leave those canes upon which you elect to have this year's crop grow untouched, except to trail them along the rows out of the way of cultivation. Carry off the severed canes, clean up, and plow and cultivate the vineyard, and put all things to rights. Then in April, when Jack Frost has left the State for the season, go through again, which may be done very rapidly, cutting back the bearing canes, and all will be safe and ready for a good crop.

PLANT FLOWERS.—Every owner of a house and piece of ground should beautify them with shrubs and flowers. It costs but little—an hour of a night, or a morning, or an odd day now and then, will do a great deal. There can be no excuse for a lack of beautiful surroundings to a home where the soil and climate are so prolific in favors as here. Flowers should bloom around every habitation. They add to the pleasure and comfort of all who come in contact with them, and especially exercise a refining influence on children. Plant flowers then by all means.

VINES can be made to perform no small part in beautifying the farm and home. If there be about the farmhouse a dead or scraggy tree, do not cut it down, but plant about it a few hardy herbaceous vines, and sooner than you imagine it will be covered with beautiful festoons of green, and in the fall with crowns of glorious hues. The gardeners and superintendents of public grounds are practicing this new

mode of ridding the beautiful places of unsightly dead trees or stubs. Woodbine, Clematis, and Bittersweet are largely employed, and can be obtained at little or no expense, and the effect is surprising in its improvement. The house can be made glorious by planting roses of variegated colors in profusion. A trellis can be cheaply constructed against the side of the house, and soon covered with vines that will make it a rival of the bowers of royalty. Unsightly out-houses can be hidden from view by using a little skill in planting these climbers about them; fences, ledges, bowers, or any device you may desire, can be made to serve as an ornament and add to the value of the property.

WHEN AND HOW TO EAT FRUIT.—When fruit does harm it is because it is eaten at improper times, in improper quantities, or before it is ripened and fit for the human stomach. A distinguished physician has said that if his patients would make a practice of eating a couple of good Oranges before breakfast, from February to June, his practice would be gone. The principal evil is that we do not eat enough of fruit; that we injure its finer qualities with sugar; that we drown them in cream. We need the medicinal action of the pure fruit acids in our system, and their cooling, corrective influence.—*Medical Journal.*

A NATURAL curiosity attracts the attention of the passer-by on the road between Lansing, Michigan, and the Agricultural College. It is a Cherry tree six inches in diameter, growing up through the crevice in a large rock, which crevice at the time the seed fell in it was an opening not much larger than a pipe-stem. The heavy rock is gradually opening year by year to make room for the expanding trunk.

PLANTS FROM CUTTINGS.—The American Institute, after a thorough discussion of how to grow plants from cuttings, finally arrived at a set of conclusions which may be summed up in a few words, thus: Always bear in mind that a high temperature is necessary to grow plants from slips. They will seldom strike roots when the thermometer marks below 60 degrees, and that is probably why so many fail. The best material to start cuttings of any kind in is clean washed sand. If in the ground, make a hole an inch or two across and fill it with sand. Grape propagators use nothing but sand and water at first. When roots start, the cuttings are changed to other pots filled with rich compost.

AN ALDEN fruit-drying house is nearly finished at Santa Rosa, and others have been commenced at Auburn and Santa Rosa. The Riverside establishment is planned with special reference to the production of raisins. Professor Hilgard finds that the Alden fruit is much sweeter than the sun-dried, but has not fully satisfied himself of all the causes of the difference. It is certain that, in slow drying, some of the sugar changes to alcohol, and is thus lost; and acids may be formed by fermentation.

SNAILS OR SLUGS.—A resident of Stockton states from practical experience that ten pounds of lime to a barrel of water will make lime water with which, if the water is sprinkled from a watering-pot, no snails will be left alive to devour the vegetation. He says lime water or solution of quick lime of the ordinary kind used by bricklayers and plasterers for making mortar, sprinkled upon them will cause their instant death. A drop of lime water is sufficient to kill a snail.

The red spider is a very annoying pest, and is getting to be very plentiful and troublesome in California, on many kinds of plants, in doors and out. Tobacco smoke will kill them, also soap suds and cayenne pepper. Fumigation with tobacco or sulphur is the resort for their destruction by gardeners when they infest plants in greenhouses.

The following is given as a poor man's breakfast, near Colton, San Bernardino Valley, California: Tea, sweetened with pure, white, strained honey, thick cream and bread, milk, eggs, Hubbard Squash, ham, Pomegranate, black Hamburg Grapes, Flaming Tokay Grapes, green Figs and Peaches. Cost of breakfast for man and wife, fifteen cents.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING FEBRUARY 28, 1877.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 18 Market Street.)

BAROMETER.

Mean height at 9 A. M.	30.17 in.
do 12 M.	30.17
do 3 P. M.	30.16
do 6 P. M.	30.15
Highest point on the 20th at 12 M.	30.34
Lowest point on the 28th at 6 P. M.	29.85

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	55°
do 12 M.	61°
do 3 P. M.	62°
do 6 P. M.	57°
Highest point on the 19th at 3 P. M.	66°
Lowest point on the 6th at 9 A. M.	49°

SELF-REGISTERING THERMOMETER.

Mean height during the night.	48°
Highest point at sunrise on the 1st.	56°
Lowest point at sunrise on the 15th.	43°

WINDS.

North and north-east on 11 days; south and south-west on 6 days; north-west on 4 days; east and south-east on 7 days.

WEATHER.

Clear all day 10 days; cloudy on 7 days; variable on 11 days.

RAIN GAUGE.

	Inches.
1st.	0.21
2d.	0.03
12th.	0.68
20th.	0.01
22d.	0.04
25th.	0.12
26th.	0.05

Total.	1.14
Previously reported.	7.57

Total up to date. 8.71

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. VII.

SAN FRANCISCO, APRIL, 1877.

No. 4.

THE JUJUBE (*ZIZYPHUS*).

BY G. P. RIXFORD.

The Buckthorn family, *Rhamnaceæ*, includes over two hundred widely distributed species; represented in South America by the beautiful genus *Ceanothus*, in Europe and Asia by *Zizyphus*, in South Africa by *Phylica*, and in Australia by *Pomaderris*.

The Jujube (*Zizyphus vulgaris* and *Z. jujube*), are the species of most interest to the fruit grower. The former is a native of Syria, and is extensively distributed throughout the south of Europe, north and western Africa, and western Asia. This species was introduced into California from France three years ago, and was planted in Sonoma Valley, where the trees have made a vigorous growth, and produced the first crop of fruit last season.

It is naturally a prickly, entangled shrub, but may be trained to form a small tree ten or twelve feet high. The twigs and small branches are of a reddish brown color, and the whole plant is armed with strong, sharp thorns an inch in length. The leaves are small and of a delicate green, and the blos-

soms minute but fragrant. The fruit is of the size and shape of a large Olive, and when ripe is covered with a smooth, reddish, tough skin like that of the Date, which it somewhat resembles in flavor. It has a sweet or sub-acid pulp, surrounding a hard, oblong seed which contains a little oily kernel. The dried or preserved fruit is known in the markets of the south of Europe as Jujubes, and is much used in France, Spain, and Italy as a sweetmeat on the table, and is said to be an invariable accompaniment in the peasant boy's lunch basket. The well known Jujube paste of the shops, when genuine, is made of it, though the inventive genius of the age produces a mixture of gum-arabic, sugar, water, and a little coloring matter, without a particle of the fruit, that is disposed of as the "Simon Pure" *pate de Jujubes*.

The tree succeeds in almost any soil, if not too wet, and is perfectly hardy in this climate. It is easily raised from cuttings, seeds, or suckers, the latter coming up in abundance around the old trees. Seedlings come into bearing in six or seven years, and suckers and cuttings in two or three. The shrubby habit of the plant and its arm-

ament of sharp thorns renders it well adapted for the purposes of a hedge plant. Planted thickly it would present an effectual barrier to any animal larger than a squirrel, and would doubtless continue to yield its annual crop of valuable fruit. According to Theophrastus, this shrub, or *Z. lotus*, was so common on the island of Lotophagi that a Roman army, on its way to Carthage, subsisted for a time upon its fruit. We would not recommend that it be extensively planted, as the fruit is not likely to prove as acceptable as the more popular varieties now cultivated, but it is well worth a place in every garden for the sake of its delicate foliage and general attractiveness, while its fruit is by no means unpalatable or valueless.

Z. jujube is extensively cultivated in India and China, and there are said to be sixty varieties of the fruit, all differing in size, shape, and color. Some kinds are oval, others flat, and there are free-stone and cling varieties as in our Peaches. The tree in its native country reaches a height of twenty-five to thirty feet, blossoms in January and February, and ripens its fruit in June and July. In a dried state the fruit is often seen in the shops of the Chinese quarter of this city. It would doubtless succeed in some portions of this State without protection. It has already been introduced, and plants are now growing in the conservatories at Woodward's Gardens.

Z. lotus, another species, native of south and western Africa, is of less interest for its fruit, though of some importance in its native countries. The berries are of a yellow color and nutritious. They are converted into a kind of bread, and a beverage is manufactured from them. This fruit is supposed to have formed part of the food of

the ancient Lotophagi. This variety has hooked spires, and is a rambling growing shrub. There are other species, including *Z. sinensis*, which produces the fruit sold in the European markets as Japonicas, of more or less importance, which are worthy of a trial in California.

A SAN LORENZO FRUIT FARM.

The spring is opening fast, is rather early this year, and vegetation generally, and the blossoms of many fruit trees are putting forth, and some fruits are already forming. The hillsides and the meadows have assumed the emerald tint so pleasing to the eye. The whole air is filled with the perfume of the fruit bloom and of the cultivated and wild flowers. The sun is warm, and the innumerable tribes of insects are swarming around. The sweet songs of birds are gratifying to the ear. Thus we found it on a late visit to the country not far from the shores of our magnificent bay. Mr. Lewellyn has a fruit place of about 150 acres in orchards of different kinds of fruit. The chief is the Cherry, which thrives on this rich bottom land with a wonderful vigor and health. Most of these trees were planted by his father some 20 years ago. One of them—a May-duke—is over two feet in diameter three feet above the ground. These cherries branch off low from the earth's surface. Such a promise and profusion of blossoms and fruit already formed can hardly be equalled probably in any other part of the world, and what is better, and different from the East, is that there is never here any rainy weather at the time of ripening to create rot and so destroy them, and there are no insects to puncture and gum them, or mar their exceeding beauty. In front of

the dwelling, and among the parterres of flowers and choice shrubs, there are about twenty handsome sweet Orange trees covered with golden fruit and their flowers just commencing to bloom out. They are about 18 years old. There is no trouble with Oranges in this location and soil after they are about 3 or 4 years old. But for several years after the young trees are planted they should be protected from frost by some sort of covering, as it is found that frost has the most injurious effect on them the nearer they are to the ground. Near the house we observed a large black Mulberry full of fruit, and forming a grand and wide natural bower, the limbs drooping gracefully all round, and extending about twenty feet from the trunk on all sides. This fertile alluvial soil does not suit altogether the Almond, it making too rank a growth, and the bottom lands being more subject to frosts than the hills some 400 or 500 feet higher. This year, however, there is a good prospect of there being a large crop of Almonds, as there has been very little, if any, frost since the last rain about the beginning of March. The English Walnut is a gigantic tree here, and like everything in this rich soil and genial clime, grows rapidly. Among the most luxuriant and splendid flowers in the beds fronting the house are two large Camellias with a profusion of white blooms with pink stripes. The borders of the flower compartments are formed of the most healthy and highest dwarf Box we have yet seen in this country. Plums do well here, especially the German Prune, which is quite profitable. The Yellow Egg and Coe's Golden Drop are also successful sorts as regards sale profits.

Mr. Lewellyn remarked that if his predecessor, who planted most of the

fruits, had only known 20 years ago as much as is known now with regard to the most suitable and valuable fruits, the fruit business would now be vastly more remunerative. This soil is too rich and the land is too flat for successful Grape culture for wine. Strawberry, Raspberry, and Blackberry cultivation is equally futile for the market, on account of irrigation having not yet been entered upon. The best varieties of Apples and Pears do well—particularly the Newtown Pippin of the former, and the Bartlett and Winter Nelis of the latter.

Mr. Meek and Mr. Hathaway have fruit farms adjoining, the first having in all about 3,000 acres, 450 of which are in orchards of large and some of the small fruits. Mr. Hathaway, also, has a large body of land in all the kinds adapted to this locality, but space will not admit of a description of these splendid and extensive places in our present number.

CULTURE OF THE VERBENA.

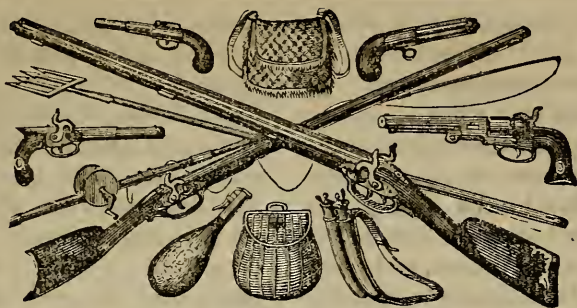
To grow Verbenas well it requires a good bed in the right place. But it should be where there is plenty of sunshine, as they will not succeed in the shade. Any good, sufficiently deep, rich and friable soil will grow them. A lawn, too, is a fine place for them. Cut out a round bed, or any other shape desirable, on a lawn or grass-plot; invert the sods and place them in the bottom of the bed; put six or eight inches of good soil on the surface; set a good plant of double Zinnia or a Geranium in the centre. Buy or beg a dozen or more of good, strong, growing plants, not high-spindling affairs (particularly if you have to buy them); set them two feet apart in the bed. If they are pot plants, set them so that

the bottom of the Verbena will be six inches deep. If the plant is branching as it should be, bend off the branches in a slanting position, and fill in the centre with soil nearly to the surface; water freely to settle the soil around the roots; and then fill up the space with dry soil to prevent baking. Peg down the plants as they spread, and keep the soil well cultivated, and of course free from weeds. You will then have a fine bed of Verbenas. If you should want to grow good seedlings, get good plants to begin with. The best Verbenas produce the best seed, especially the scented and red colors, just as the best Peaches do, but you can not entirely rely on either. The probability is you will be satisfied with the finest that have been already raised, without troubling yourself about your own seedlings. This is more the province of the professional florist. When you are tired of your Verbenas or they should perish, or grow too rusty and black, you can spade them in, and this process will enrich the soil sufficiently, especially if done yearly. The plants that have blue, purple, and white colors have the most seed, and the flowers of most of them are sweet scented. A few years past a fragrant Verbena was a novelty. We have now quite a variety of them. Gather your seeds early in the morning when the dew is on, or after a shower. Do not use heating manure, as it will make the plants rusty-black. The bright and showy flowers of the Verbena make it the most popular bedding plant in cultivation. We here give the names of a few of the best: Verbena Hybrida, auricular flowered, New Striped Italian, Pure Blue, Pure Scarlet, Montana, Blue Bonnet, Gail Hamilton, President, Queen of Stripes, King of Scarlets, Grand Victor, King of Purples, Snow

Flake, Scarlet Circle, with endless others, old and new.

THE ANCUBA JAPONICA.

This handsome and attractive shrub forms one of the most common, but no less desirable of plants in all the gardens and on all the lawns and shrubberies of England and Europe generally. We have been surprised to observe how few of them are to be seen of any respectable size in California, where we have a climate so favorable for them as well as for all varieties of vegetable life. The *Ancuba Japonica* is not sufficiently hardy for outdoor cultivation in the Eastern portion of the United States, where no tender evergreens like it will stand their winters. The reason why we have at present no plants of this shrub of any large growth is, that the florists and nurserymen here who first ordered it from the East, were not fortunate in their plants being in a healthy condition; but now we observe many flourishing well, and of a good size for transplanting. In some catalogues and works of botany this shrub is termed Spotted Bay. Its large evergreen foliage, beautifully blotched with golden yellow, makes it welcome everywhere when once well known. It matters little what may be the kind of soil or the aspect selected for it, the *Ancuba* will generally thrive, though it prefers a strong loam and rather sunny spot when choice can be made; for grouping, or as an isolated specimen, it is equally useful; it bears cutting to almost any extent, and is consequently in the Old World sometimes used as a hedge-plant; cuttings strike freely under a hand-glass in summer or spring, and layers offer a ready means of propagating. We commend it to all ornamental gardeners.



Rod and Gun.

TROUT FISHING IN CALIFORNIA, AND THE BEST LOCALITIES FOR IT.

The season of the angler's enjoyment has come, and the lovers of this truly captivating sport may now be found with "deadly killing fly" or bunched worm, seeking to superinduce widowhood and orphanage upon the beautiful tenants of the waters. In regard to fishing for trout with a fly, it is undoubtedly the *ne plus ultra* of all skill to be shown in the art; and although without doubt the trout will at different times and at certain hours of the day prefer one kind of artificial fly more than another, still we think that such a variety of flies as many consider necessary is carried to an excess of refinement in this country, and that four or five flies all the year round—a green, a yellow, a red, and a brown—are all that are really necessary, the size of the fly only being varied. Perhaps three more flies should be added to the list—a black, a dun, and the almost indispensable white miller, which in the (to the angler) happy hour between sunset and dark, has proven often the most useful of all, and then this view would be substantially correct. Our best fishing tackle stores now furnish all the flies that can be wanted, and it is useless waste of time, unless the fisherman has plenty of it at command, to be making

his own flies, or imitating any particular natural fly that he may observe in his haunts, or near or dropping on the streams. In the early part of the season more trout may sometimes be killed with the green drake than with any other fly; but for all the days of the fishing season we believe that the number of flies above named will be ample on this coast.

There are two kinds of fishing for trout—with the fly, or with the worm, grasshopper, or pieces of fish. There are several hours in the day when the sun is shining very brightly, and when there is no wind whatever to make a curl upon the water, that no fly will tempt the trout to rise for it, or, if they should, to take the hook. It is then that the above baits come into good service, and though many of the veteran and most scientific sportsmen sneer at worm-fishing as utterly beneath the notice of the practical angler, yet this fishing with the worm and other successful baits is not generally understood by the mere fly-fisher, and will bear cultivation by them. It is much practiced of late years, both in Europe and America, and here clear water worm-fishing is a worthy branch of the angler's art, particularly when, while out on a fishing excursion, and on a river or creek abounding in the coveted beauties, no fish will rise to a fly, and your basket can not be filled by any other method.

It is almost superfluous to observe that any hook used for trout should be dressed on fine, transparent gut. No natural fly has a long white appendage resembling the thread of gut or coarse line by which some would-be anglers attach their flies to the casting line. For much fished streams, flies tied on very coarse gut are useless, and worse. Some of the old fellows to be found lying *perdu* for prey in some deep hole by the side of the bank are wary and shy; if you can persuade him to rise at your fly or other bait at all, it will be before he has obtained more than an indistinct glance at it. The trout that scrutinizes your bait so closely as to perceive your tasteful combination of dyed feathers and tinsel, or your wriggling worm, in their finer effects, will not help to fill your basket.

Now as to the most favorable, convenient and nearest places to resort to from this city. Our peninsula of San Francisco cannot boast of trout in its few running streams; but the three lakes leased by our Sportsman's Club, Pilarcitos, San Andreas, and Merced, are fairly stocked with several kinds of fish. Pilarcitos is well supplied with brook trout, San Andreas with salmon, and Merced tolerably with both salmon and Tahoe or Truckee trout, the last of large size. The fish there may be all caught either with the fly, bait-fishing, or the spoon-bait or trolling. In San Mateo County, after a few hours' journey, are San Mateo Creek; below the San Mateo is the San Francisquito, Stevens' Creek, near Blackberry Farm; Congress Hall Creek, at Saratoga, seven miles from Santa Clara; Pilarcitos Creek, Spanish Town; Purissima, Pomponio, San Gregorio, Territos, Pescadero, Butano, and at Santa Cruz. In Alameda and Marin are Fruit Vale Creek, Wild Cat, San Pablo, San Le-

andro, Alameda, Calaveritas, Smooth, Isabella, and Arroya Honda, and main Alameda. In Marin County, Paper Mill Creek, White, Novatto, Nicasio and Lagunitos. In Napa, Lake and Mendocino counties are found trout streams which have been much less abused than those we have first mentioned. This is owing, of course, to their much greater distance from the city, a day or two's travel being necessary to reach their head waters. These rivers are the Walhalla, Big River, Noyo, Navarro, Dry Creek, Russian River, Little Dry Creek, in Sonoma County; Big Sulphur, and Squaw Creek. These latter two are within easy reach of Cloverdale. At much greater distances are Lakes Tahoe, Donner, Independence, Summit, Walker, Fallen Leaf, Cascade, and many others, all full of trout weighing from one pound up to as high as thirty pounds. All our mountain streams in Middle, Northern, and Southern California are alive with the much-coveted and game denizens of the waters. To wind up, the farthest and greatest fishing locations are the McCloud and Upper Sacramento rivers, where the famous "Dolly Varden" trout are to be had.

REMINISCENCES OF ENGLISH ANGLING.

The carp (*Cyprinus Carpio*) is a very common fish in some of the English streams, but is more especially an inhabitant of lakes and ponds which are well stocked with aquatic weeds and of clayey or marly sides. It is much more a vegetable than a carnivorous feeder. It has been said of it—

"Of all the fish that swim the wat'ry mead
Not one in cunning can the carp exceed.
Sometimes, when nets inclose the stream, she
flies
To hollow rocks, and there in secret lies.
Sometimes the surface of the water skims,
And springing o'er the net, undaunted swims.
Now motionless she lies beneath the flood;
Holds by a weed, or sinks into the mud."

In fishing for him in ponds and rivers in England, particularly in the warm months, we have found him to be a shy and rather dainty fish, but his cunning, so much spoken of, as regards taking the hook, is, perhaps, somewhat exaggerated, though he is sometimes, at special seasons, indisposed to the bait, as he is the least inclined to animal food of all fishes. Its tenacity of life is very great. In Holland and Germany, where it much abounds, they sometimes suspend them in a damp cellar in nets full of moss, which is moistened with milk, and the fish not only live, but grow fat. All writers agree in attributing to them great longevity, even to 150 years, though they become white with age, when they are young being a golden yellow, with large scales.

There are several species of carp, some of the finest being found in Holland and Germany, where they are kept fresh for sale in tanks. They were imported into this country in 1832, in Orange County, New York, and did well in ponds. Some were put into the Hudson River, where their produce was taken by fishermen, and they seemed to flourish still better than in ponds. A few years ago some were brought to California and placed in General Vallejo's and Mr. Poppe's ponds at Sonoma, where they have reached quite a large size. This sort is better than some others for the table, but they can not compare with the sea salmon and brook trout for fine flavor, richness, and freedom from bones. These fish are still being imported into the United States and to this coast, and but very recently a lot arrived here. They are best suited for ponds, and where the water is rather of a warm temperature, being different from the salmon family in this respect. They breed several times in the course of the year. Some have been

known to be a yard long, and to weigh twenty or thirty pounds. They are also long-lived. We have found them in England to bite best in warm weather. They take more freely earth worms, gentles or maggots, or a paste made of wheat flour, honey or sugar, than anything else. We found that they, like the barbel, bit best after the locality where we fished was baited with a ground-bait of balls of bran mixed with worms and clay, or any garbage, as chickens' entrails, or the like.

There are many fine specimens of this handsome fish in the aquarium at Woodward's Gardens, and they seem to be very hardy there.

The fish of this genus imported here are known as the Karpfe-Koenig, or Carp King, and the Spiegel-Karpfe, which is the English, the mirror or leather carp.

None of the carp family, or cyprinoids, are "first class" fish, but, as Professor Baird said, as long as it makes food similar to the Sacramento River "pike," as it is called, for some one—the Chinaman, for instance—and does not consume other fishes, like the true pike or pickerel (*Esox*), that might serve the same purpose, it is well to import them. In short, we consider the introduction of the carp as very desirable, and we hope for its successful introduction. The eel, too, in its great value for food, and abounding in phosphorus, would also be a grand acquisition to this slope, were it not held a good deal in detestation by sportsmen and anglers, on account of its very unpleasant manœuvres before it can be detached from the hook; but to all pot-hunters and food-seekers it would be glorious and acceptable prey.

It is said that the netting of trout is now practiced in open violation of law.

THE SALMON OF EEL RIVER.

EDITOR CALIFORNIA HORTICULTURIST:—

As is generally understood, there are now three varieties of the salmon genus that ascend the waters and tributaries of Eel River, Mendocino County, for the purpose of depositing their spawn. These are individually known in this community as the "hook-bill," "large blue salmon," and the "spring" or "silver salmon." The latter is recognized by various titles in different localities along the coast, but has received the appellation of *Salmo Mendocinensis* from Dr. Gibbons.

About the first of October the hook-bill and blue salmon enter the mouth of the river (this time varies but little in different seasons), and appears on the spawning grounds from the middle to the last of December, the hook-bill species being about two weeks in advance. But the unprecedented appearance of the large salmon, unaccompanied and not preceded by the hook-bill, on the spawning grounds, or within eight or ten miles of their limits, on the 7th and 8th of November of last season, calls for comments in regard to their unusually early appearance, and the causes and influences that prompted the action. If they came up so early this year, why do they delay other years? The streams had immediately risen, and were less swollen at that time than commonly twenty days later, when they seem to disdain to appear. Why should they practice procrastination one year and reject it another? From what followed, it is evident they availed themselves of a very propitious time for their rapid movement; for these first rains were followed by fifty-five days of clear weather, giving their spawn ample time to complete the incubation, so as not to be destroyed by the turbulent floods

that so frequently follow. Had they remained in the central portions of the streams, waiting the floods that came in the latter part of June, they would have become, as the term is used, "worn out," and the greater part have been unable to fulfill the functions of their aspired destinies. So it seems they possess some faculties or means of predicting the future. As they dwell in but one element, there are but few things that can come under their foresight or appreciation that could have any influence on their predictions of the future weather. I attribute it to the temperature of the water. That they are very susceptible to any change in the temperature of water, all pisciculturists well know. The rains of the latter part of October were very warm, the mountains free from snow, and warm, clear days followed. The temperature of the water was advanced to 52 or 57 degrees. Had snow fallen on the mountains to lay after the rains had ceased, the water, as a necessity, would have been 15 degrees lower, and the rapid changes in the temperature of the atmosphere of day and night would have occasioned great agitations in the air, speedily terminating in winds from the south and west, laden with vapors that rapidly condense where brought in contact with the colder currents of air. So I have concluded and believe that the salmon become very successful in their instinctive prognostications, from their exceedingly accurate susceptibility of any change in the temperature of the element in which they dwell.

J. H. CLARKE.

THE SPORTSMAN'S CLUB.

The Sportsman's Club of California was organized for the accomplishment of a good and much-needed work, and

we believe that it has done much toward carrying it out. Without the jealous vigilance of such an organization there would be serious danger that our woods and hills would be speedily depopulated of game, and our streams of fish. The ordinary pot-hunter is not much given to reflecting upon general principles. He does not concern himself about the future, or the rights and interests of those who are to come after him. He thinks only of the present, and of his own immediate convenience. He is apt to regard game laws as being made in the interests of a coterie of sportsmen belonging for the most part to the class blessed with wealth and leisure, whose feelings and interests are in antagonism with those of the poorer classes. Hence he is disposed to evade and violate those laws whenever it can be done with a prospect of impunity. But men of larger views will have no difficulty in understanding how serious an injury would be done to the State by permitting the wasteful and wanton destruction of game and fish. Thousands of Eastern and European sportsmen are attracted to California by the fact that within its boundaries there are a multitude of streams abounding in salmon and trout, vast expanses of marsh lands frequented by countless flocks of wild ducks, geese, rail, and snipe, and forests which harbor deer, bear, and an immense variety of game. In fact, with a rigorous enforcement of wise and judicious game laws, California will be for a hundred years to come the paradise of the hunter and the sportsman.—*Chronicle*.

VIOLATIONS OF THE GAME LAWS.

We are glad to see that some of the interior papers are giving warnings concerning violations of the game laws.

The following from the *Russian River Flag* is just what is needed: "Elsewhere we publish the game law and penalty for its violation. The warning given last week against the use of Giant powder for the destruction of fish is again repeated, and if the offense is continued, prosecutions will commence under the law mentioned. Residents within a few miles of town inform us that within a few weeks the banks of the streams near their ranches were literally strewn with dead and decaying fish, killed by Giant powder explosions. This wanton destruction is a reproach to the community." We hope that prosecutions will be had for what has already occurred.

The amended game law, which passed the last session, forbids the trapping of quail, or any interference with their nests. It shall be unlawful for any person to catch or kill a prairie chicken before September 1st, 1879. It shall be unlawful to catch or kill game birds of any kind between the first day of April and the first day of September of each year. It shall be unlawful for any person to catch, kill, or have in his possession, any deer, elk, antelope, mountain sheep, or goat between the first day of January and the first day of July of each year. The limit of penalty is \$200 fine and six months' imprisonment. The Act also protects at all times sparrows, blue birds, blue jays, thrushes, mocking birds, swallows, red-breasts, cat birds, rovers and humming birds.

TO DESTROY GRUBS.—A weak solution of carbolic acid (about half a dozen drops to a gallon of water) will destroy worms and grubs in flower-pots without injuring the plants. Paraffine (diluted) is also said to have the same effect.

Selected Articles.

AMERICAN POMOLOGICAL SOCIETY.

The American Pomological Society (organized 1848) having accepted the invitation of the Maryland Horticultural Society, the undersigned give notice that the sixteenth session of this national association will be held in Baltimore, commencing Wednesday, September 12th, 1877, at 10 o'clock A. M., and continuing for three days.

All Horticultural, Pomological, Agricultural, and other kindred Associations in the United States and British Provinces, are invited to send delegations as large as they may deem expedient; and all persons interested in the cultivation of fruits are invited to be present, and take seats in the Convention.

It is confidently anticipated that there will be a full attendance of delegates from all quarters of our country, thereby stimulating more extensive cultivation by the concentrated information and experience of cultivators, and aiding the Society in perfecting its Catalogue of Fruits. This Catalogue includes fifty States and Territories, most of which have their columns filled with a great amount of information as to the fruit adapted for culture in the respective locations. Many of these are yet incomplete; and it is the object of the Society, from year to year, to fill the blanks, and bring its Catalogue nearer to perfection. To accomplish this object as fully as possible, the Chairman of the General Fruit Committee, P. Barry, Esq., Rochester, N. Y., will send out the usual circulars of inquiry; and it is desirable that these inquiries should be answered at an early day. The various State and Local Committees are urged to respond to the circulars as soon as practicable.

The coming session will derive a special interest from its location in the midst of the great fruit-growing region of the Atlantic coast, and also from the fact that it is the first meeting held since the expiration of the first century of our national history. It is desired, in this connection, that the Vice-Presidents of the several States, Territories, and Provinces, should furnish or procure, as far as possible, short historical sketches of the rise and progress of fruit-culture in their respective districts, from their settlement up to the year 1876, to the end that the forthcoming report may give a complete view of the pomological history of the various parts of the country. State and local Horticultural Societies are respectfully requested to co-operate and aid in this work.

Arrangements will be made with hotels, and, as far as possible, with the various railroad lines terminating in Baltimore, for a reduction of fare. Wherever possible, it would be best that such arrangements should be made by the various delegations with roads in their localities, as rates made by Baltimore roads will apply only to their lines.

Members, delegates, and societies are requested to contribute collections of the fruits of their respective districts, and to communicate in regard to them whatever may aid in promoting the objects of the Society and the science of American Pomology. Each contributor is requested to prepare a complete list of his collection, and to present the same with his fruits, that a report of all the varieties entered may be submitted to the meeting as early as practicable. By vote of the Society, no money premiums will be offered; but a limited number of Wilder Medals will be awarded to meritorious objects.

At the same time, from Sept. 11th to 14th inclusive, the Maryland Horticultural Society will hold a Grand Exhibition of Fruits, Plants, Flowers, and other products of Horticulture, by which an increased interest will be given to the occasion.

Packages of fruits, with the names of the contributors, may be addressed as follows: "American Pomological Society, care of William B. Sands, Baltimore."

All persons desirous of becoming members can remit the fee to Thomas P. James, Esq., Treasurer, Cambridge, Mass. Life-membership, twenty dollars; biennial, four dollars. Life-members will be supplied with back numbers of the Proceedings of the Society as far as possible.

MARSHALL P. WILDER, President,
Boston, Mass.

W. C. FLAGG, Secretary, Moro, Ill.

THE SPANISH WALNUT.

Messrs. Littlefield, Webb & Co. recently received a sack of nuts from Mr. Charles Camden, of Tower House, Shasta County, that are a novelty in this market, and have attracted considerable attention. Thinking that information in regard to it would be of interest to many readers of the *Call*, we requested Mr. Camden to send us the history of the tree. Following is his reply:

"TOWER HOUSE, }
Shasta Co., Cal., March 9, 1877. }

"Yours of 2d inst., requesting that I would give you the history and organization of the tree that produced the nuts you saw in the house of Messrs. Littlefield, Webb & Co., San Francisco, duly received.

"Sixteen or eighteen years ago, Mr. Tower, the then owner of this place,

planted a variety of nuts in nursery, including the English and black walnuts, butternuts, hickory, chestnut, pecan, and the nut that produced the kind you refer to, but where he procured them I can not say. He, or the gardener, at the time, denominated them the 'Spanish Walnut,' and we give them the same name still, whether properly or not, I can not say. The tree is a very thrifty grower; one now measures 44 inches in circumference. It develops in very handsome form, after first turning to shape, and needs no pruning, the limbs producing no surplus laterals. The foliage is a lighter green than the English walnut, with a narrower and longer leaf, bears the fruit in straggling clusters, and carries ten or a dozen to the bunch; matures and bears earlier than the English walnut, and is more productive and regular, and the nut has a thin hull or husk. The flavor, as you observe, is something like the butternut, but it is far less oily, and much superior, in fact, a most excellent nut in taste, although hard. The shell is thin, full and sure kernel, and the skin covering free from bitterness and objection. On the whole a fine acquisition to the nut family. The nuts you saw are hardly up to a fair average, the trees having overborne, and they not receiving proper attention as to irrigation.

Respectfully yours,
CHAS. CAMDEN."

The nut is in shape somewhat like the pecan, but thicker, average specimens being about one and one-half inches in length, and one inch in diameter, tapering to a sharp point at the apex. The shell is of the same color, and has the wrinkled surface of the English walnut, though thicker. The kernel is shaped almost exactly like that of the butternut of the Eastern States, and

has the same delicate flavor. The pellicle, or skin of the kernel, is very thin, and, as Mr. Camden observed, is free from the bitterness of that of the English walnut. The nut is not recognized by any of the nurserymen who have seen it as belonging to any of the varieties of the walnut family known here.

JAPANESE MUSHROOMS.

One of the industries of Japan is the cultivation of Mushrooms, which are exported in large quantities from that country, and some interesting information respecting them is given by Consul Robertson in his report on the trade of Kanagawa, lately issued. The best of the edible species of Mushrooms are known as "matsutake" and "shii-take." The difficulties attendant on preserving the former kind almost exclude them from the market for export, for not only do they decompose very rapidly, but even when successfully dried are nearly tasteless, and thus useless in cookery. The shii-take species, however, have this peculiar excellence, that, though all but tasteless in their raw state, when they are dried they have an extremely fine flavor. The quantity that grows naturally on the decayed roots or cut stumps of the shii tree is not sufficient to meet the demand for them; consequently much skill has been brought to bear on their cultivation, notably by cutting off the trunks of the shii and other trees and forcing the growth of the Mushroom on them. Different varieties of oak are most in favor for the cultivation of the Mushroom, the tree known as the shii giving, however, the best results. About the beginning of autumn the trunk, about five or six inches in diameter, is selected and cut up into lengths of four or five feet; each piece is then cut down

lengthwise into four, and on the outer bark slight incisions are either made at once with a hatchet, or the cut logs are left till the following spring and then deep wounds seven or eight inches long are incised on them. Assuming the first course to have been pursued, the logs, after having received several slight incisions, are placed in a wood or grove where they can get the full benefit of the air and heat. In about three years they will be tolerably rotten in parts. After the more rotten parts are removed they are placed against a rack in a slanting position, and about the middle of the ensuing spring the Mushrooms will come forth in abundance. They are then gathered. The logs are, however, still kept, and are submitted to the following process: Every morning they are put in water, where they remain till afternoon, when they are taken out, laid lengthwise on the ground, and beaten with a mallet. They are then ranged on end in the same slanting position as before, and in two or three days Mushrooms will again make their appearance. When the logs are beaten so heavily that the wood swells Mushrooms are produced of a more than ordinarily large growth. If the logs are beaten gently a great number of small-sized Mushrooms grow up in succession. In places where there is a scarcity of water rain-water should be kept for steeping the logs in. There is yet another plan. The cut logs are buried in the earth, and in a year's time are dug out and beaten as above described. The Mushrooms thus grown are stored in a barn on shelves ranged along on three sides, with braziers lighted under. Afterwards they are placed in small boxes, the bottoms of which are lined either with straw or bamboo mats. These boxes are then ranged on the shelves

and all approaches carefully closed. An even degree of warmth is thus diffused. The boxes ranged on the upper or lower tiers are constantly changed, so that the contents of each will be thoroughly dried. Another mode of drying is to string the Mushrooms on thin slips of bamboo, which are piled together near the brazier. The heat is well kept in by inverting a closely woven basket over them. Dried Mushrooms, which are much liked by the Chinese and largely consumed by the Japanese, retain their flavor for a great length of time, and thus bear transport to any distance very well.—*Pall Mall Gazette.*

NOW FOR THE HOMESTEAD.

Spring is fast going out into summer—a season of drought, winds, dust, and other disagreeable facts. There is just one opportunity left to set out trees and put the homestead in order. We assume that every man who has a small tract of land in the country will have a sufficient number of fruit trees to give him fruit enough for home consumption hereafter. There will be half a million of people living in the cities of this State who can grow no fruit. But people who live in the country and own land have no excuse for neglecting to grow fruit for domestic use. A few people reason in this way: "We can buy all the fruit we want cheaper than we can grow it, and what is the use of bothering about fruit?" The proposition is not essentially true. Fruit can not be bought cheaper than it can be grown on the homestead, save in a few exceptional cases. Moreover, the fruit grown at home is fresher and more desirable than the stale fruit which must be brought from a distance.

There is no luxury like that of picking ripe fruit from a tree. It is fresh

and wholesome; and there is a pleasure in taking it from the tree which once known is never forgotten. Many a denizen of the city has turned away from the regular fruit markets of the metropolis and gone to the country that he might have the pleasure of eating fruit plucked by his own hand fresh from the trees. As one-half of the population of the State live in cities, they must eat fruit which has been gathered from twenty-four to forty-eight hours, and some of it even longer. As for the rest, one of the compensations of living in the country is that they can have abundance of ripe fruit for little more than the trouble of taking it from the trees and vines. A single acre, or even less, devoted to a well selected variety of fruit trees, will produce enough for a large family, with a surplus to give away.

But assuming that the fruit orchard will not be neglected as a feature of the rear lot of the homestead, what is to adorn the front and the road leading to the country house? In a majority of instances a country house, or rather the houses of those living in the country, are not only uninviting, but they are positively forbidding in external aspect. The roads leading to them are bare and dusty, and few have even thought it worth while to set out ornamental trees. This is especially true of the hot valleys of the interior. Here and there, at some toll-gate or half-way house, a shed has been built over the road, that teams and teamsters may be protected from the fierce rays of the sun while stopping a few moments for refreshments.

Now there is really nothing to hinder every homestead in California from being made attractive by a few ornamental trees. Better spare a little ambitious carpentering and put the cost in trees

and pleasant approaches to the house. A Grape vine or a Hop vine run over the porch or on trellis work in front of a farm house, changes the entire external appearance of that place. It at once becomes inviting and homelike. A few shade trees go a long way toward making such places attractive. The external appearance of a country home may be entirely changed in three years by a careful disposition of a few ornamental trees.

Take, for instance, the new houses constructed in the suburbs of the towns. How raw and bald they appear at first. But three years from the time of construction everything is changed. Trees and shrubbery have been growing, and the stiff new house takes on a ripe and homelike appearance. All this arboriculture can be done in the odd hours which every homestead owner in the country will have at command. There are only a few days more in which this work can be done this year. Spring is advancing rapidly. The buds are swelling, and most trees, indeed, are in leaf, and with a few more light showers the tree planting season will close for the present. Even a single day devoted to tree planting will tell wonderfully upon the future appearance of the homestead. We have not yet established an arbor day for California. The fact is, all days are good for arboriculture, from New Year's up to the first of April. But if one of these days is especially devoted to tree planting it may be set down in the calendar as a kind of secular saint's day in behalf of the homestead.—*Bulletin*.

HORTICULTURAL IMPORTATIONS.

The horticultural missionaries, who manifest their zeal in the good cause by entreating the heathens of Califor-

nia to plant trees, should be informed that tree planting in this, as in most other parts of the United States, has been almost a mania for the last ten years. Consequently all such appeals are like sending flannel shirts to the babies of Africa. [Still we favor them.—ED.]

No stimulus is needed in this matter, and if any advice is to be offered for directing this tree-planting movement, it must come from the highest and best informed sources to be of any avail; for it is evident that a high degree of taste and practical judgment are, and have been employed in this great work.

In California, especially, the progressiveness indicated in this direction is remarkable. From information derived from our exchanges, and from inquiries and facts communicated by correspondents, we are impressed with the conviction, that not only are trees being planted in abundance, but that there is a sufficiency of taste and judgment displayed in the matter. The State University is keeping pace with the popular taste in this direction, and is doing much to add to the wealth of California in its timber, fruit, and ornamental possessions, and capitalists are manifesting a commendable interest in this subject, and are spending their money in thus improving the property owned by them; while people of more limited means are steadily improving and beautifying their possessions in cities and villages as well as in the country.

The recent importations referred to are twenty-four varieties of Maple from Japan, which we had the satisfaction of examining at the establishment of R. J. Trumbull in this city. The trees were accompanied with beautifully colored plates descriptive of the foliage of all the varieties. These plates were ex-

ecuted by the Japanese, the coloring as well as other parts being done by hand. A leaf of every one of the twenty-four varieties is given, its form and color being represented in all their minutia. The varieties of foliage displayed here are remarkable, many of the leaves being extremely unique in form and color.

The importation consists of six trees of each variety; all grafts, and all in excellent condition for planting. They were sent here to a gentleman who recently visited Japan, and observing these trees in full foliage there, resolved to try them in California. A large portion of them were engaged before the box was open, and on learning the names of the parties who obtained them, we were satisfied that they had fallen into good hands. The growth of this interesting family of Maples will be watched with a good deal of interest by horticulturists generally, as well as by those who were fortunate enough to procure them.—*Rural Press*.

HOW THE FIG IS CULTIVATED AT SMYRNA.

The subjoined letter from the United States Consul at Smyrna, with its accompanying account of Fig culture, is in response to a letter from a gentleman connected with the *Call*, asking for such information. We give Mr. Smithers' reply without further preface.

"SMYRNA, February 17, 1877.

"Yours of December 6th duly reached me, and I take much pleasure in sending you herewith enclosed the information you desire regarding the culture of the Fig in Asia Minor, for which I am indebted to Mr. Augustus O. Clark, a very intelligent English gentleman who settled many years ago in the Aidin district, where he engaged in

the manufacture of liquorice paste and subsequently became a large owner of Fig orchards. Mr. Clark is an enlightened agriculturist, and the information contained in this report may be relied upon. Thanking you for your kind offer to be of service to me at any time, and wishing every success to yourself and those you represent in the cultivation of the Fig, I remain, my dear sir, very sincerely yours, E. J. SMITHERS."

The Aidin district is the only one which produces Figs for exportation. The fruit will grow anywhere in the neighborhood of Smyrna of a quality for consumption in a green state; but the Aidin plain is unique in its climate and soil as being favorable for the proper curing of the Fig. The thermometer seldom falls below three or four degrees under the freezing point, and in the summer seldom rises above 130 degrees Fahrenheit in the sun. In Aidin the winters are generally wet, the dry weather commencing in May and continuing to the end of October. Any rain at the end of July or during the months of August and September, when the fruit is under the process of drying, injures its quality by causing it to burst, hardens the skin, gives the Fig a dark color and spoils its keeping quality. Heavy dews will cause the same evils. What is required during the time the fruit is coming to maturity is fine weather and dry winds.

The Fig tree grows in almost any soil; it grows very luxuriantly, however, in a rich, heavy soil; but to produce Figs that will dry well, and please the merchant, the soil ought to be of a good depth, and of a rich, light, sandy nature; this latter, if the weather is favorable, will produce large Figs of a white thin skin, and of the finest quality. Before planting, the ground ought to be well plowed two or three times to

a good depth, well pulverized and free from all weeds and extraneous roots.

The Fig is propagated from slips, selected with as many fruit buds as possible. To form a tree two slips are planted, one foot apart, and then joined at the top. The trees, if planted in rich soil, should be placed about thirty feet apart, and for poor soil about twenty-five feet distant from one another.

The cuttings are to be planted in the month of March—two in each hole—at about nine or twelve inches apart, at the root end; then gradually bring the top buds to meet, just crossing them, thus, X; then tread in the earth well. The cuttings must be full of buds or eyes, and when about to plant them cut the root end off at the first knot, care being taken not to leave any of the pulp in sight, as it will then be liable to be attacked by worms, which will make the tree hollow and sickly. The cuttings are put into the ground to within one or two inches of the top, after which the process of crossing must take place. The ground must be well trodden in to within one or two inches of the top, then cover the remainder over with loose earth, which will protect the ends from the heat of the sun. When the trees arrive to about the height of a man, nip or cut off the tops to one uniform height, and this will cause the tree to branch out.

During the growth of the trees, the ground ought to be plowed up two or three times during the winter or spring and the space between them may be used to cultivate broom, sesame, or Indian corn. When the trees are large the same system of plowing and loosening the earth around the trees ought to be continued. To make a Fig tree grow well, the plowing of the garden is very essential. If this is not attend-

ed to, the fruit will be small and in every respect inferior. The first year of planting, the cuttings ought to be watered during the summer months.

The male fruit, about the middle of June, contains a large number of small flies, and is thrown on the female tree; these flies then get distributed over the fruit and convey the necessary amount of pollen. The system is as follows:

When the female Fig (first crop) is about the size of a hazel nut, five or six of the male Figs are strung on to a piece of string, and one or two of these branches are thrown upon the female tree, according to its size and amount of fruit. Repeat this operation when the second crop is about the same size. As the tree grows larger year by year, increase the number of strings; but never put more than six strings (say about thirty male Figs) over the largest tree at one time. These strings are put on the tree about one hour before sunrise, and care must be taken that the weather is fine and no wind blowing. I may mention that, if the male Fig is not applied, the crop will not set, but the fruit will fall off; and if too many are applied the fruit will likewise fall or become very small or inferior.

About the end of July the first Figs come to maturity. The Fig harvest lasts about six weeks. When the Fig is ripe, it will of its own accord fall from the tree, only partly cured. Women and children are employed to pick up the fruit into small baskets, to be conveyed to a place in the garden well exposed to the sun, where they are spread on a bed of dry grass or matting, singly—that is to say, not one on top of another—and are turned every day, so as to get every side of the Fig exposed to the sun. After a few days of exposure to the sun, those Figs

which are considered sufficiently dry are selected from the mass and divided into first, second, and third quality. Care must be taken not to dry them too much. When properly cured the skin ought to feel dry, but the inside soft. Practice alone can teach to what extent the drying ought to take place. The grower then sends the Figs to Smyrna, where they are re-sorted and packed for shipment.

HOW TO CULTIVATE THE BANANA.

The Rev. H. H. Messenger thus writes to the *Los Angeles Herald*: "Get bulbs or plants from six inches to six feet high (these latter will bear in twelve months, the other in two years), and plant ten or twelve inches deep, in very rich, warm soil. As they will stand (or rather require) forcing, mix half well rotted manure (not new, which may heat them too much and kill them) with the soil. Then give them a soaking with water once a week in warm weather, or once a month at any rate. In warm, sunny exposures more fruit may be expected; but they will stand a good deal of frost, for once or twice in winter, say 25 degrees, for a little while in the night, so the mercury soon rises before they freeze through. They draw up a great deal of moisture from the ground, which is of a higher temperature than the cold air of the night, and this circulating within the trunk preserves the fruit. For a few plants protection may be provided by wrapping old rags and things around the body, which saves the internal heat, just as clothing for a person. And even though the leaves may be cut off, the new ones will be thrown out from the top, where finally the cluster or bunch of fruit appears, which, hanging a few months, ripens into the

delicious fruit which nearly every one likes so much. The proper distance to plant them is about eight feet apart, as this gives room to irrigate and stir the ground between them. Also, such space is wanted for them to stool out, as they branch from the root, each stalk producing but one bunch of fruit. Then it dies down, or should be cut off near the ground to decay by the root to furnish food for the new plants which continually sprout from the old root. I think the new plants should be thinned out so as to let about three from one root bear in a year. Six, eight, and ten sprouts might be all, as it were, struggling for the mastery at once, in two or three years after planting, unless they were thinned, and some would perhaps bear nothing in that condition. Sell, give away, or plant these somewhere else, for remember they are obliged to bear or die, when the last leaf comes out, just as a stalk of corn. They are not trees, as so many ask, and each stalk bears but once. They are of the Lily family, and branch under the ground, just as the Lily, Pineapple, etc. But unless killed in some way, by frost, gophers, or other injury, the roots send up new sprouts forever. Now take an acre, say, and plant eight feet apart, giving 681 plants. Force the growth by manure, irrigation, and stirring the ground, and inside of two years you have some ripe fruit, some green, some just putting out a great brown bud, which lifts up a covering every day or two, disclosing about ten nice little Bananas, the size of one's finger, with a peculiar bloom on each, which the bees almost fight over. After two years, then, say, but two stalks from each root bear. Well, then, say one bunch of fruit is produced from each root each year, and as these will average from twenty-five

to sixty each, they will sell for one dollar each, which will be a nice little sum, almost equal to an Orange grove. The increase of bulbs is five or six each year; so that in a few years one is able to stock a number of acres from a small number to start with. Of course the continual pulling off of bulbs will prevent a large yield of fruit; but perhaps three bulbs can be taken from each every year, and as much fruit grow as if one were to leave all. A rich, sandy soil seems best adapted to their growth, but with old straw, or manure to mix in, almost any soil will do if it is only warm enough.

CULTIVATION OF PEPPERMINT.

W. Boots of San Jose communicates to the *Pacific Rural* the following as the result of Mint cultivation engaged in by his firm: Two years ago we brought one car-load of plants from Michigan, and planted about twenty-eight acres. The plants came in rather bad condition, being poorly heated. We planted about the 1st of November. Our location was low and subject to overflow, consequently the greater portion of the plants were covered up with debris from the floods. We cut and reduced a few acres the July after planting, and found a greater yield of oil where we had a full stand of plants than any we had ever known elsewhere. We had portions of the plantation that would yield at the rate of 40 pounds of oil per acre from a single crop, while we know of no crop yielding more than 28 pounds of oil per acre in Michigan or New York, where they make peppermint oil a business. A few words in reference to the oil in our markets here. While the oil of peppermint was worth \$6 50 per pound in New York, the best we could do here was \$3 75 per pound,

while our production was equal to any of our Eastern oils, so far as we had the means of testing it. I am well satisfied mint can be made a profitable business in California, but the location should be carefully selected. I find there should be but little alkali in the soil. I think the up-river tule lands would be just the place for it. There is not the least danger of drowning the plants; the water may cover the plants for weeks in the winter, and it seems to grow the better when it comes to the light. With us it was wholly a matter of experiment. Our object was to determine whether we could produce two crops per year, but our location being rather unfavorable, we have stopped short of a full solution of the matter, though I am much inclined to the opinion that two good crops can be grown each year on locations which can easily be selected in many of our up-river tule lands.

A WASH FOR FRUIT TREES.

The following is recommended by a commission of fruit growers, presided over by Prof. Cyrus Thomas, State entomologist of Illinois, and is part of a very full report, embodying advice as to the best means of fighting the insects that infest the orchards of that State: "Insects and mildews injurious to the leaves of seedlings and root grafts can be kept in subjection or destroyed by a free use of a combination of lime and sulphur. Take of quick or unslaked lime four parts, and of common flour of sulphur one part (four pounds of sulphur to one peck of lime); break up the lime in small bits, then mixing the sulphur with it in a tight vessel (iron best), pour on them enough boiling water to slake the lime to a powder; cover in the vessel close as

soon as the water is poured on. This makes also a most excellent whitewash for orchard trees, and is very useful as a preventive of blight on Pear trees, to cover the wounds in the form of a paste when cutting away diseased parts; also for coating the trees in April. It may be considered as the one specific for many noxious insects and mildew in the orchard and nursery; its materials should always be ready at hand; it should be used quite fresh, as it would in time become sulphate of lime, and so lose its potency. Wherever dusting with lime is spoken of, this should be used. This preparation should be sprinkled over the young plant as soon as, or before, any trouble from aphides, thrips, or mildew occurs, early in the morning, while the dew is on the trees. This lime and sulphur combination is destructive to these pests in this way: By giving off sulphuric acid gas, which is deadly poison to minute life, both animal and fungoid; and the lime destroys by contact the same things; besides its presence is noxious to them; neither is it injurious to common vegetable life, except in excess, unless the lime to the foliage of evergreens."

EUCALYPTUS TEA.

The editor of the *San Diego World* gives the following personal experience: Some months ago the writer read in an English paper of a discovery by some physicians in Europe of the value of the Eucalyptus in early stages of cold and fever. Some weeks ago, being taken with a severe cold, we made a decoction of Eucalyptus leaves and drank it on retiring to bed. The result was that it brought on a gentle perspiration and sleep, and in the morning all symptoms of the cold had disappeared. A fortnight ago a friend of ours was

seized with cold and fever. He had aching pains all over his body, and to every appearance bade fair to be confined to his room. We thought of the Eucalyptus, and told him of our experience. He went home and had a strong decoction made, and drank freely on going to bed. It worked like a charm, for he was in perfect health the next morning, only a little weak from profuse perspiration. His wife was suffering from cold at the time, and tried the remedy and found it a perfect and immediate cure. One instance more in our own case. Last night, just before going to bed, we were seized with a violent chill, accompanied with pains in the back and legs. This was followed by a little fever. These symptoms had presaged a very serious illness a year or two ago, and we thought ominously on the subject. We sent out to the street, had some leaves plucked, and our favorite tea was made at once. We drank about a pint and soon fell asleep, and to the credit of Eucalyptus we say we are as well to-day as ever we were in our life. Our opinion is that the tea is perfectly harmless to drink even a large quantity of. For a medicine tree we can recommend everybody to grow Eucalyptus.

A PROPAGATING SECRET.

Under this head the *London Gardener's Chronicle* says: "It will be remembered that a month or two ago we alluded to an alleged extraordinary secret for propagating trees and grafting Roses, whereby much time could be saved, offered for a small sum by an Austrian nurseryman named Bachraty. This gentleman has since communicated an article on the subject to the *Wiener Gartenfreund*. Briefly, his new method is as follows: Cuttings of the

shrubs and trees are taken off at the beginning of July, from 6 inches to 12 inches long, according to the kind. The leaves are removed from the lower portion which is to enter the ground, but those which will come above the ground are left. Beds are prepared for them in the open air by thorough digging and leveling, and afterwards applying a superficial layer, about two inches thick, of rotten manure from a spent hotbed. The cuttings are then stuck in two inches apart and in a somewhat oblique direction. Each of the beds when filled is surrounded with a lath fence, so that shade may be given when the sun is very hot, and the cuttings are well watered with a rose-pouted can. This completes the operation. The only further care necessary is a sprinkling overhead three or four times a day during the first week, if the weather be very hot, and once a day afterwards. In the course of five or six weeks, treated in the manner indicated, the cuttings of most plants will have formed a callus, and further shading will be unnecessary. Late in the autumn a layer of rough manure, two or three inches thick, is spread over for winter protection. It also serves as manure when the cuttings start growing in the spring; and cuttings treated thus make extraordinary progress — forming plants equal to two-year-old plants from winter or spring cuttings. Very few, it is asserted, fail. The new method of grafting Roses is the insertion of growing eyes early in spring, instead of dormant eyes in the summer. They are inserted in the main stem one on each side, to form symmetrical heads. These make, it is said, as much growth the first season as the dormant eyes the second season. Experiments of this character are easily made, and well repay the experimenter.

AMOUNT OF WATER IN TREES.

Farmers and gardeners have often observed, and the fact is referred to by Lindley, that during cold weather the branches of certain trees are sometimes so much bent down as to obstruct passage below the tree, but that with the advent of mild weather they return to their former positions. In investigating these phenomena, Prof. Geleznow observed that they depend not only on temperature, but also upon the humidity of the air; and he undertook, therefore, a series of researches to ascertain the amount of water contained in different parts of the branches under various atmospheric conditions. The first part of these researches (not yet published), proved, first, that the amount of water increases in each branch from its base to its summit; second, that the bark of the larch throughout the year contains more water than the wood; and third, that in coniferæ the upper part, *i. e.*, the part above the pith of a horizontal branch, contains always more water than the lower part, while in other trees, as for instance, the birch, the conditions are reversed; altogether, that coniferæ and dicotyledons seem to possess opposite properties, as regards the distribution of water in the tree. Further researches, published now in full (*Bull. Ac. de St. Petersb.*, vol. xxii, No. 3), introduced new elements into the inquiry — namely, the varying amount of water in the bark and the wood. It appears from these researches that humidity of the wood and dryness of bark have constant relation; that in certain trees (fir and maple) the wood remains throughout the year drier than the bark, while in others (birch and aspen) this is the case only during a part of the year, the conditions being reversed at other times. The relations

between the humidity of the bark and that of the wood are so constant that a useful classification could be based on them. It appears, further, that the smallest amount of water contained in the branches of certain trees, as, for instance, the fir, is observed during the season when the vegetation is in fullest vigor, and that this circumstance, as well as other important facts, is in close relation with the development of leaves. Altogether the researches, which are yet far from being completed, promise to disclose, and probably explain, a variety of very interesting facts.—*Nature*.

WINDOW GARDENING.

"How exquisitely sweet,
This rich display of flowers—
This airy wild of fragrance,
So lovely to the eye,
And to the sense so sweet!"

The season for ornamenting the windows of dwellings is now approaching, which will induce many to purchase ornamental plants for that purpose. A taste for such display is commendable as the spring develops her golden gems. Their attractiveness in the market will be considered sufficient inducement to allure the attention of the thousands who daily visit them. The commercial gardener in his endeavor to satisfy public taste, is certainly unremitting; his skill conspicuous, and, therefore, merits the encouragement of a liberal public. Ladies, and those who patronize them should bear in mind that flowers, however gorgeous in floral beauty, when fully developed should not be selected for window culture; those only redundant with buds just ready to expand will give more satisfaction, for their long continuance of beauty, and will render more satisfaction to the purchaser.

In the purchase of plants, select such as are compact, for, in the early season, gardeners are more mindful in forcing them for immediate sale; such are lanky in appearance, and if not skillfully managed and nursed, soon perish. The check received in their transition from the greenhouse it is difficult to surmount; the rough winds from early exposure not being congenial to them. It must not be understood that such plants in early spring must be cooped up in a room without fresh air, for that is as necessary to them as water; a discriminating judgment is necessary when it should be admitted. The failure in managing some plants when removed from the greenhouse is often caused by too much care, but with precaution in their management for the window, may be made as healthy and interesting in their floral beauty as the greenhouse.

The earliest flowers well adapted for the window are the China Primrose and some of the bulbous-rooted family, which should be kept as near the glass as possible, and turned round daily for the sake of symmetry. The Hyacinths and Tulips in pots or glasses, and the Crocuses, are great contributors for parlor display. The Rose, queen of flowers, with its unconquering beauty, is always a gem of admiration, its delightful perfume, a distinguished characteristic, making it a welcome adjunct to the window.

"Resplendent Rose! to thee we'll sing;
Resplendent Rose! the flower of flowers,
Whose breath perfumes Olympus' bowers,
Whose virgin blush, of chastened dye,
Enchant so much our mortal eye."

This class are numerous and varied in beauty and habit. *Hermosa* and *Mrs. Bosanquet* are among the best known in the market for the purpose, which stand unrivaled. There is an-

other, an old variety, though much neglected, a semi-double, a free bloomer, called Sanguinea—when well grown is always admired for its rich, showy flowers. There are some called Daily Roses, which in reality is not the case, for the buds are formed only on young wood, which must be admitted; some are more free in growth than others; but these flowers are loosely formed, reflexed by heat, and straggling, unworthy the room occupied by them. The beauty of the Rose is compactness in its petals and free blooming, which is generally the case with most Bourbon Roses; even these can not be depended on unless kept free of the green fly that infests young shoots in the spring. Those insects are easily removed with soapsuds, or a camel's hair pencil; the trouble of removing them on first appearance is but little, and should be attended to.

EUCALYPTUS FICIFOLIA.

Australians speak very highly of the *Eucalyptus ficifolia*, which blooms much earlier than the *E. globulus*, now so much talked about as the great Australian "fever tree." The annual report of the Director of the Melbourne Botanic Garden, in referring to improvements in portions of the grounds, says that several specimens of the gorgeous scarlet-flowering *E. ficifolia* are there planted, and then enthusiastically adds:

"This magnificent plant, from Broken Inlet, Western Australia, produces its flowers at a much earlier stage of growth than any other species of the genus with which I am acquainted; its bloom resembles a ball of fire more than anything else to which I could compare it. I have seen the Flame Tree of Illawarra, and the brilliant scarlet masses of *Erythrina laurifolia* on

the banks of Rewa in Fiji; but neither surpasses the effect produced by the floral display of this *Eucalyptus* when in bloom." Still another arboreal beauty the Director is enthusiastic about as an adornment for these "Lake Islands!" is one "not to be excelled for the grandeur and wealth of its bloom," the *Jacaranda mimosæ-folia*, or Rose-wood of Brazil.

This tree, judging by the progress made by small specimens now in the Botanic Gardens, will succeed here quite as well as in the Sydney Botanic Gardens, where a specimen, over twenty feet high, is the great attraction in its flowering season. Its foliage, of a fern-like appearance, is exquisitely graceful; and even when divested of arboreal flora, while in the blooming season, the blossoms, of a delicate blue, are so abundant as to completely cover the tree, making it, from a distance, appear as a mass of Cerulean grandeur. These trees, with the Pampas Grass, will form a contrast which will be the most pleasing, and will adorn the lake, giving both interest and warmth of color, so necessary to finish a perfect landscape.

HOW TO GROW AN ORANGE TREE FROM THE SEED.

To produce an Orange tree from the seed three things are necessary—sufficient warmth, a pulverized soil, and sufficient moisture. Consequently the following things are to be guarded against: The drying out of the soil, keeping it too cold by too much shade or too much water, the hardening or baking of the surface, the burning or withering of the young shoots, which are very tender, by the direct heat of the sun or scorching winds. Plant in May, June, or July, to get the neces-

sary warmth and sufficient growth to bear the light frosts of winter. Plant the seeds immediately after they are taken out of the Orange; if allowed to become dry, the germ will be killed. Pure sand is the best soil. Surround with boards, and shade with a screen. Any arrangement will do that conforms to these principles, whether planted in a hot-house, in boxes, or in the open ground; whether moisture is supplied by allowing the water to run over the bed from the ditch or by sprinkling; and by whatever contrivance they are protected from the sun and wind. Different arrangements will have different advantages. The following, as an example, will better explain our meaning: Supposing there are 500 seeds to be planted, and from choice or necessity water is to be applied by sprinkling. Take four boards, from six to sixteen inches wide, and make a frame, say four feet wide and fourteen long. Of course, these dimensions are immaterial. Make a bed the dimensions of the frame, cover it with three or four inches of pure sand, and put your frame around it; mark off four little furrows, and plant your seeds in the sand, about an inch apart, covering them to the depth of two inches. If planted too deep they will not get sufficient warmth; if too shallow, they will find opportunity to dry. After planting wet thoroughly, then cover by stretching an awning of light muslin across the frame. Other cloth will answer, but we think something that will admit considerable light and warmth is to be preferred to heavier material. Now sprinkle every day—evening is the proper time—or at least every other day. A little and often, as Captain Jinks used to say, is best. In about five or six weeks, if thus cared for, the yellowish tiny shoots will begin to appear above the sand,

and if from that time forward the care of his baby orchard is not a pleasure to the owner, he had better withdraw from an agricultural avocation. After they have formed leaves they will no longer need such great care; they should still, however, be watered twice a week. When strong enough to bear sun and wind, the screen and boards should be removed. In six months they will have attained a size of from twelve to fifteen inches, and be sufficiently hardy to outlive the troubles of the winter season, but judgment must be used. If a young tree is tenderly nursed up, as in a hot-house, it always will be tender, and will die when those more hardy survive. If the leaves of the young tree appear gnawed, the depredating insect should be looked for and destroyed. If ants should threaten trouble, there is nothing more efficacious than a kettle of boiling hot water applied to their nest. —*Riverside News.*

DEW AND FROST.

Now, as we approach that season of the year when we may look for dews and frosts, the one welcome and the other endured, it may be profitable to study the conditions favorable to their deposition.

It is a well-known and an oft-observed fact, that on a warm day, if a water-pitcher be filled with cool water, a film of moisture—dew—is soon deposited on the outside. This is caused by the cooling of the vessel below the dew point, and, in general, dew is deposited on any substance when that substance is cooled below the dew point. This dew point is not at a fixed temperature, but depends upon the amount of vapor in the atmosphere—the more vapor the higher the dew point.

All substances at the surface of the earth send out rays of heat toward the sky. When these substances send out more heat than they receive, their temperature falls below that of the surrounding air. Whenever this is the case, dew begins to be deposited. If objects, such as grass and leaves, did not fall below the temperature of the surrounding air, then no dew would be deposited.

For a moment let us see what this difference of temperature is. Observation shows facts like these. Place a thermometer on the grass, fully exposed to the sky; then one six inches above it will read 6° higher; one foot, 7° higher; twelve feet, 8° higher; fifty feet, 10° higher; 150 feet, 12° higher. This conclusion is the result of a year's observations in England. No observations of a like nature have been made in America, to my knowledge.

Again, whatever obscures the sky hinders radiation. The thinnest cambric has a marked effect. The near presence of buildings and trees is a hindrance, but by far the most efficient obstruction is watery vapor. Tyndall has shown that of all the vapors that of water cuts off the greatest number of heat rays. The effect of clouds on radiation, as might be supposed, is very great. From an average of experiments it was found that a thermometer placed on grass, fully exposed to the sky, sunk below one suspended four feet from the ground as follows: On cloudless nights, 9.3° ; on nights half cloudy, 7.3° ; on nights principally cloudy, 6.8° ; on nights entirely cloudy, 3.4° .

Some substances are better radiators than others. When a thermometer placed on grass sinks $10''$ below one suspended four feet from the ground, a thermometer placed on wool will sink 12° or $15''$; a thermometer placed on

copper sinks $8''$; on paper, $6''$; on brick, only $3''$ or $4''$. The indication, from a great number of observations, is that sharp points radiate heat readily, hence those substances presenting the greatest number of sharp points are the best radiators. This, however, is not fully proven. When the temperature of plants, by reason of radiation or other means, falls below the dew point, then moisture or dew is precipitated upon them, and if the temperature be low and the conditions favorable for radiation, the temperature just at the surface may fall below 32° above zero. In that case frost is formed. The best radiators, therefore, are most likely to be covered with frost, and when those substances are growing plants, we say they are frost-bitten. If my theory of sharp points be true, then woolly-leaved plants are the best radiators, and therefore most exposed to the killing effects of frosts. Therefore such plants as beans, potatoes, tomatoes, etc., are most likely to be frost-bitten. Peaches are doubtless more liable to be frost-bitten just after dropping the bloom than just before, because the young peach is woolly and a good radiator. On this theory, other things being equal, the peach is more tender than the plum or cherry.

I think plant life is not destroyed because frost gathers, but because the temperature of the plant sinks below the freezing point, thus congealing the sap, which, in the form of ice, expands and bursts the walls of circulating tubes, thus stopping circulation, the same as a pump is ruined by the bursting of a pipe.

Can we artificially protect plants from frost? In many instances I think we can. Anything that will stop radiation is a protection. A sheet fastened by its corners so as to extend over a favorite

peach tree, is a protection. In favorable localities, a thick cloud of smoke may be made to hang over an orchard, thus shutting off the open sky. Sometimes rich nooks in the creek bottom are selected for garden spots, but afterward found to be exceedingly frosty, especially if the surrounding banks are of any considerable elevation. This frosty location may, in many instances, be improved by cutting away all timber and underbrush for some distance down the stream, so that the heavier air, which is always the colder, may escape; but if the temperature of the surrounding air sinks much below 32° , there is little hope for tender plants.—*D. M. C. Gault in Willamette Farmer.*

WATERING PLANTS.

There is no operation in which vague notions more prevail than in watering plants in time of drought. Take the following facts as data for proof:

1. A soil one foot in depth will receive one-fourth of its bulk of water without being too wet for the use of growing plants. Another fourth will saturate it. No distinct line can be drawn, but it may be laid down as a general rule that a moist soil parts with from one-tenth to one-fourth of its water during the dry, hot weather of summer. To supply the deficiency by artificial watering, therefore, one-tenth to one-fourth of the bulk of the soil must be added in water.

2. Small herbaceous plants, such as the strawberry, extend their roots from two to three feet horizontally, and a foot or more downwards, in a good and deep soil. We have found no difficulty in tracing their fibres, by lifting the soil with a spade to these distances, and the minute rootlets have, no doubt, extended considerably farther. The roots

of young trees generally extend as far in each direction from the trunk as the height of the tree. Many examinations have proved this fact with much uniformity.

Now apply these two facts to show what benefit may be derived from watering. The roots of a strawberry, if they extend only two feet each way, would require at least two cubic feet to give it a moderate soaking, or at least fifteen gallons of water. Who ever thinks of applying this, or a tenth part of the amount, for watering a strawberry plant? On the contrary, a half pint is the more common quantity, which can scarcely descend half an inch in the soil, instead of a foot downwards, doing but little more good than a single dew on the deep, burning sands of Africa.

Or take the example of a young tree, five feet high. Its roots run five feet in each direction, and extend through 78 cubic feet of soil. To add but one-tenth of this amount in water would require nearly 18 cubic feet, or about three hogsheads. No one ever thinks of applying such an amount to his young trees, but merely wets the surface and forms a crust.

In ordinary practice, water is poured around the foot of the stem, saturating a few cubic inches of the soil, but in a few hours the whole of it is absorbed by the dry soil around it, so that a careful examination would scarcely discover any trace of the added moisture. If the roots, therefore, only extended an inch or two from the base of the plant, it would be necessary to apply the water several times a day to replace the amount absorbed by the great bulk of surrounding dry soil.

As a general rule, therefore, watering amounts to but little, unless given in large quantities, and regularly repeated as often at least as once in twenty-four

hours. It cannot be applied extensively except by irrigating ditches, as a single inch of water on an acre would be over three hundred hogsheads, and the constant employment of a dozen teams or more to draw it. The fallacy of attempting to irrigate an acre of strawberries by drawing in tanks may be well understood. Keeping the soil moist by deep mellow cultivation is incomparably easier, and better in every respect, unless water can be run on to it or through it from rivers, lakes, etc.

Editorial Portfolio.

OUR FRONTISPIECE.

We present our patrons this month with a picture of a group of several of our favorite Ferns. Few rustic adornments better become a parlor window, or their sylvan abode in a garden or a rockery where shade and coolness, fragrance and verdure have their delightful habitation. Though Ferns are beautiful anywhere, and may suitably adorn the trim border, and mingle with ornaments of formal design, they are more at home, more befitting among tree-stumps, and in boldly designed rock-work, where they appear in their proper character of wildness and simplicity.

In most city localities in this climate, and also in many in San Francisco which are free from much smoke, it is not difficult to establish many sorts of Ferns in the open air, but the generality of them, owing to their delicacy of constitution and impatience of a dry, cold, or smoky air, require a conservatory, similar to those at Woodward's Gardens, where a very fine collection seems to attain excellent health and great luxuriance of growth. In our suburbs, however, any of the Ferns that are ordinarily grown out of doors,

succeed well, giving them a suitable soil and abundance of water.

In forming rock-work expressly for Ferns, it is best to construct a round or square hillock of brick and stones, the south border of which may be bounded by some building or wall to ensure the necessary shade. One side, at least, should have but little sun, one should have it winter and summer, while the other two should but occasionally bask in its rays.

Ferns artificially grown, and tended with proper care and skill, generally exceed the beauty of those grown by nature. True, we can not grow the scene as well as the Fern—we can not have the dark glen, the damp, moss-grown cave, the decayed tree trunk, or the crumbling archway of the waterfall. Yet we may have the Ferns to suggest such things, and to keep alive the remembrance of pleasures and of scenes which keep a coolness in the brain and a freshness in the heart—breathings of fragrance from the green world that sweeten the resting-places in the march of life.

Those Ferns which grow beside cascades, and in dripping caves, require to have their fronds constantly wet, while others thrive best if kept comparatively dry.

A not too difficult plan to prepare a suitable soil for them is to build up a foundation of sandy loam and old lime and brick rubbish, and afterwards made up with a compost of two parts of pasture mold, two of rotten leaves, and one of flower pots broken into small pieces. Most Ferns will thrive in such a compost if kept quite moist.

In country rambles, especially in the vicinity of forests, in damp woods along the banks of brooks, where there are many decayed tree trunks, and among rocks, many fine specimens may be ob-

tained with a little searching. Even as near as Saucelito is to this city numbers of fine Ferns can be easily obtained, particularly the Maiden-hair and Silver Fern. In removing them it is necessary to dig out the root-stock in as complete and uninjured a state as possible, and if a portion of the soil can be taken away with the plant it is better. They should be planted as speedily as possible, and well shaded, and kept moist for two or three weeks before fully exposing them. The spring or autumn are the best seasons to remove them.

HORTICULTURAL AND OTHER PUBLICATIONS RECEIVED.

"Price Catalogue of Fruit, Shade, and Ornamental Trees and Greenhouse Plants," for 1876 and 1877, from Thos. Meherin's Depot, 516 Battery Street, opposite the Post Office, S. F. P. O. box 722. This well furnished establishment has been in a prosperous condition for many years, is well known for reliability in its stock, and the proprietor is fully posted and very assiduous in giving instruction and information to his patrons relating to all his trees, shrubs, plants, seeds, flowers, etc.

"The New Guide to Rose Culture for 1877." The Dingee and Conard Co. Rose Growers, West Grove, Chester County, Pa. Roses by mail a specialty. With instructions how to grow Roses in open ground, Roses in pots, Roses in beds and masses, what Roses to plant, insect enemies, winter protection for Roses, how new Roses are originated, etc.

R. H. Allen & Co.'s "Seed Catalogue for 1877, of Vegetable, Flower, and Field Seeds, Roots, Plants, and Garden Requisites." Warehouses Nos. 189 and 191 Water Street, New York.

I. M. Thornburn & Co.'s two catalogues for 1877, 15 John Street, N. Y.

"Annual Circular and Retail Catalogue of Warranted Vegetable and Flower Seeds for 1877," grown and sold by James J. H. Gregory, Marblehead, Mass.

"A Manual on the Culture of Small Fruits," by E. P. Roe, Newburgh, New York.

"Report of the Commissioners of Fisheries of the State of California."

John Saul's "Catalogue of New, Rare and Beautiful Plants for 1877," Washington, D. C., among which is a wonderfully lovely Rose named the Glazenwood Beauty. This Rose is very large, of a brilliant yellow, striped and blotched with scarlet, with rose or crimson edged foliage and thorns. If this Rose is only half as beautiful as its picture sent out by this firm, it will enchant all eyes. It is a Hybrid Tea, of a most distinct and novel kind, unlike any other variety already known, and may possibly prove to be an entirely new genus. The odor is delicately sweet. It seems from all accounts to be the most striking novelty introduced for years. We have a splendid picture of this extraordinary specimen of Flora's empire, sent us by John Saul.

"Vick's Floral Guide, No. 2," for 1877, with an interesting notice of Horticulture at the Centennial, and plants in living or sleeping rooms, with a description of the healthfulness under certain conditions, one of which is sufficient ventilation, and bouquets should not be allowed to be left standing in the same water for several days, but this case of decaying vegetable matter is far different from living plants, which nature employs as one of the purifications of the atmosphere, which can be philosophically accounted for. But the odors of some flowers in a room are too

powerful for many persons, and therefore such flowers as Hyacinths, Tuberoses, Jasmines, Orange blossoms, and some other kinds should not be placed there.

Mr. Vick informs us that John B. Hickman, of this State, grows *Pardalium* Lilies ten feet in height, and bearing immense numbers of flowers, by the following method: "I take old cans or kegs, and make a hole in the side of each, about six inches from the bottom, and fill with stones to the level of the hole. Then fill the vessel with coarse manure and sand, and plant the bulb."

"Spring List for 1877," of the Chicago Floricultural Co., wholesale and retail plant merchants, established for the introduction of new, rare, and beautiful plants, Chicago, Ill. This is a handsomely got up publication.

"The Sanitarian and Organ of the Medicolegal Society." A monthly magazine devoted to the preservation of health, mental and physical culture. New York. A neat and valuable work.

CONDITION OF OUR FLORAL TRADE.

In the course of a general conversation with one of our leading nurserymen, we elicited the following facts: The long delayed rains have been very injurious to the trade in trees and flowers; where large purchases were heretofore made but a few dollars have been expended, so that the complaints in the nursery line are very loud as they are losing money in sales as well as the destruction of their plants and flowers. The fact has been made known that among some twenty odd cut-flower dealers in this city a business amounting to \$200,000 has been transacted the past year. The fact was also adverted to that California has the finest climate

in the world for the production of medicinal herbs and flowers from which the various oils of high value are extracted. The importation of Immortelles from France and Austria amount annually to over \$50,000, with a duty of 40 per cent. These Everlastings having no moisture in their petals, never wilt or decay, but keep their form as long as a piece of straw. Secured from dust, they retain both color and shape for years, and are valuable for winter ornaments. The chief among them are *Acrolinum*, *Ammobium*, *Gomphrena*, *Gygisophia*, *Helichrysum*, *Helipterum*, *Rhodanthe*, *Statice*, *Wailzia*, and *Xeranthemum*. These combined with ornamental grasses make beautiful floral ornaments. There is no prettier work—none more improving, than the arrangement of such floral decorations. In the autumn these flowers are gathered and dried, so that they are ready for Christmas and New Year's decorations. The flowers composing these remembrances of the dead can be produced here as cheaply as potatoes, having both the climate and sun to produce lasting, rich, and deep colors; and as for grasses of all varieties, of which there is more or less scarcity always in the market, we can produce them in great abundance. These industries could all be pursued with a profit, and will, when other channels become filled and clogged with strong competition, surely be filled by a prosperous class of people, who will then find employment for the whole household.

FRUIT CULTIVATION AND REPORT OF FRUIT AND VEGETABLE MARKET.

The best mode to give health and vigor of growth and the most perfect management to all orchards is to cultivate the soil round the trees yearly or

nearly so, and with the stirring of the soil to apply a fair quantity of manure, which may be properly termed a kind of top-dressing. There is no place on a farm or country place where all the manure that can be spared will so well repay the labor. When an orchard stands for years in grass, as many are allowed to do, trees become less and less productive, become almost at a standstill in their flourishing, and their stems become hide bound, and often clothed in moss and lichens, and a prey to the ravages of many insects either at the roots or on the bark. Every kind of farm or other refuse that can be collected from many sources should be wheeled or carted on this most valuable portion of the proprietor's productive wealth. Large, good, and improving crops of fruit will be the result of this treatment, and will well recompense the pains taken in this respect. Orchards are generally sadly neglected for years, and their value greatly depreciated in consequence. The wholesomeness of fruit for a family, especially Apples, can hardly be too impressively dealt upon by pomological writers.

We here quote some excellent remarks on this subject from one of our exchanges, though it was not therein stated whence they were derived:

"Many persons do not value Apples sufficiently as an important article of diet. Besides containing a large quantity of sugar, mucilage, and other nutritive matter, this fruit contains vegetable acids, aromatic qualities, etc., which act powerfully in the capacity of refrigerants, tonics, and antiseptics, and when freely used at the season of mellow ripeness prevent debility, indigestion, and avert, beyond a doubt, many of 'the ills which flesh is heir to.' The operators of Cornwall,

England, consider ripe Apples nearly as nourishing as bread, and far more so than Potatoes. In 1810, which was a year of much scarcity, Apples, instead of being made into cider, were sold to the poor; and the laborers asserted that they could 'stand their work' on baked Apples without meat; whereas a Potato diet required either meat or some other substantial nutriment. The French and Germans use Apples extensively, as do the inhabitants of all European nations. The laborers depend on them as an article of food, and frequently make a dinner of sliced Apples and bread. There is no fruit cooked in as many different ways in our country, nor is there any whose value, as an article of nutriment, is so great.

"An old gentleman recently stated to us that every fall he used to have a severe sickness, but since he bought, during the season, a barrel of good Apples, for himself alone, and ate the whole barrel in two or three months, he had every year saved himself from this sickness without wanting a doctor.

"Two good Apples eaten before or soon after breakfast are an almost sure cure for constipation."

We can testify from our own experience through life, that hardly any better advice with regard to the sanitary effects of the frequent use of the Apple could possibly be given than what is contained in the above paragraph.

The *Germantown Telegraph* presents us some interesting observations on the display of Apples at the Centennial, and the influence of climate on them, and from which it draws a lesson upon its effects, and also of soil upon the fruit. Speaking of the display from Iowa and Michigan it says:

"A striking feature of these Western Apples was their brilliant coloring.

Most of the varieties were of the very highest character in this respect, much no doubt owing to the varieties selected or rather saved to this late period of the Apple season, but yet not wholly, for even such a tame looking variety as we generally see it, the Rhode Island Greening, had a rosy tint on it. When we came to the Australian Apples the absence of this color was remarkable. Out of nearly 100 kinds exhibited there was not one with a blush on its cheek equal to that on a simple Rhode Island Greening from Michigan. Some few had a slight glimmer. Northern Spy, for instance, was a good deal bronzed, and a curious old English kind, known as Norfolk Beafin, might have been as dark as the Black Detroit, if grown in a country like ours. The prevailing tint was of a deep orange, this running more or less through all the kinds. As showing the growing close relationship between America and Australia, it was pleasant to note that the greatest number of these Apples were American kinds. The fruits were two months on the road, wrapped in cotton on the way, and though some had fallen by the wayside, the whole came in excellent condition considering all things."

Probably there is no climate in the world that produces such brilliant complexions, besides size also, on fruit of all kinds as that of California. It is difficult to account for this absence of coloring in the Australian Apples, but we are hardly surprised at anything in its peculiar flora and fauna differing from those of any other part of the world.

With regard to the healthfulness of fruits we will state a few facts regarding some of them in this respect. In Switzerland and other parts of Europe Grapes are considered a specific for dyspepsia, consumption, and some oth-

er complaints. Their medicinal effect is supposed by some to be due to the bi-tartrate of potash they contain. Grapes contain sugar, gum, glutinous matter, malic, citric, and tartaric acids, potash and lime in proportions varying with the kind of Grape and the different conditions of soil and climate in which it is grown.

Apples contain sugar, malic acid, gum, woody fibre and water, together with some aroma on which their peculiar flavor depends. Though chemical analysis may show much less nutriment in Apples than in many other foods, there is much available nutriment in them, and the vital analysis in the digestive apparatus uses them up closely.

The best varieties of the Pear rank deservedly among the most delicious and wholesome of fruits. In composition the Pear does not differ very greatly from the Apple. The Peach contains sugar, gum, pectine, malic acid, and water.

The Orange has been called the universal fruit of commerce, and, though the product of tropical and semi-tropical climates, it may be had fresh in every region of the world, and at almost every season of the year. The agreeable sub-acid of the Orange renders it one of the most agreeable, cooling, and wholesome of fruits, and the essential oil in the rind is serviceable to the cook in giving flavor to many dishes. Orange flower water, made from the blossoms, is a delicious anti-febrile beverage, and a tea made from the leaves of the tree is highly recommended as a drink for yellow fever patients. The Orange pulp contains citric acid, mucilage, albumen, sugar, citrate of lime, and water. The proportions of these constituents vary with the degree of ripeness of the fruit. The Lemon belongs to the same family as the Orange,

and is highly valuable for its refrigerant and anti-scorbutic properties. Its constituents are citric and malic acid, gum, bitter extraction and water.

Now as to our markets: About the 10th of last month (March) small lots of Strawberries were received almost every day, and prices showed a material reduction. The crop promised well, and with the continuance of favorable weather with but very little frost the bulk of the crop came forward much earlier in the season than usual. Indeed, this spring may certainly be considered earlier by two weeks at least than our ordinary seasons. Apples and Pears are in fair supply at \$1 to \$2 for the former, and \$1.50 to \$3 per box for the latter. Bananas had been scarce for two weeks, but the stock was replenished by the arrival of 600 bunches from Honolulu by Australian steamer.

At the end of March the downward tendency in vegetables seemed to be temporarily arrested. The slight advance in Asparagus is attributed to the shipment of two car-loads to the East, one from San Jose and one from Sacramento. Tomatoes came in from Los Angeles in larger quantities, but the demand for them was active and quotations higher. Potatoes were abundant at 50c. to \$1.25 per 100 lbs., according to quality.

In the fruit market the increasing arrivals of Strawberries and certainty that the crop promised to be very large were the features of most interest. The arrivals aggregated about 100 chests daily, and were rapidly increasing. Apples and Pears of choice quality were scarce, and brought by the single box \$2.50 to \$3.

About this period (end of last month) that excellent authority the *Commercial Herald and Market Review* had the following prices current

Apples—Choice, \$1.50 to \$2 per box; common, 50c. to \$1. Pears, choice, \$2 per box; cooking, \$1 to \$1.50. Oranges—Los Angeles, \$10 to \$35 per M. Lemons—Sicily, \$10 per box; Los Angeles, \$10 to \$15 per M. Limes, \$10 to \$15 per M. Bananas, \$2 to \$2.50 per bunch. Pine Apples, \$6 to \$8 per dozen. Cocanuts, \$5 per 100. Dried Fruit—Apples, 4½c. to 6c. per lb.; Peaches, 7c. to 10c. per lb.; peeled, 16c. to 18c.; Pears, 7c. to 8c. per lb.; Plums, 3c. to 4c. per lb.; pitted, 12½c. to 13½c.; Prunes, 13c. to 17c. per lb.; Figs, black, 5c. to 7c. per lb.; California Raisins, \$1.25 to \$2.25 per box, \$1.50 to \$2.50 per hf box, \$1.75 to \$2.75 per qr box. Vegetables—Cabbages, 40c. per ctl.; Cucumbers, \$2.50 to \$3 per dozen; Asparagus, 75c. to \$1 per box; Marrowfat Squash, \$12 per ton; Green Peas, 2½c. to 4c. per lb.; Sweet Peas, 3c. to 5c. per lb.; Garlic, 1½c. per lb.; Mushrooms, 10c. per lb.; Carrots, \$7.50 to \$8 per ton; new Potatoes, 2c. to 2½c. per lb.

STRAWBERRIES THE YEAR ROUND.—The Santa Cruz (Cal.) *Courier* tells the following good story of a perpetual crop of Strawberries, which we can well believe is true, inasmuch as the Monthly Alpines bear continuously in warm climates, especially if the land is irrigated: "We last week witnessed the queer spectacle of a Strawberry patch growing in the open air a week before Christmas. The garden is located about six miles above the town of Soquel, and about the same distance from Santa Cruz. A Mr. Thompson is the owner of the ranch, and he informed us that at any day or month in the year he could go into the patch and gather at least twenty quarts of the luscious berries in a short time. He now has in

cultivation 3,000 vines, which occupy half an acre of ground, and from these he has gathered during the past year 6,000 quarts of the large crimson beauties. Half of this quantity he sold in the local markets, at an average of 20 cents per quart, and the other half he gave away to his neighbors, as there was no demand for them from buyers. Blossoms green, and flaming red, ripe berries smile, look sedate, and blush side by side the whole year through on the same vine. This certainly is equal, if not superior, to the ancient and fabled land that flowed with milk and honey. Now let us see if his crop pays him. To start with, they are not as much trouble to cultivate as a patch of string beans would be; then, at an average of 20 cents per quart, the half acre of ground would net him \$600 a year."

ALTHEA FRUTEX.—This handsome, showy shrub is properly an Hibiscus—a very numerous genus, comprehending no less now than forty or more species, most of them inhabitants of either India. It produces its flowers rather late in the season, but is a fine, hardy, ornamental plant. The flowers are bell-shaped, and of various colors, pale or bright purple with white bottoms, white with purple bottoms, and yellow with the same. These flowers being large, gay and numerous, and the shrub compact, rather tall, and good conical shape, make an attractive appearance, and give the completest idea of the classical character. These shrubs grow naturally in Syria. Many of them are now grown double in their flowers, which form a valuable and beautiful variety. They rise with shrubby stalks to the height of eight or ten feet. The several varieties may be propagated by grafting upon each other, which is the common method of propagating the sorts with striped

leaves. Their late blooming is an advantage when other flowering shrubs are more scarce. They remain a long while in bloom, and the flowers are very numerous.

BAKED EARTH.—In the cultivation of house plants, if the earth in which they are to be placed be thoroughly baked in the oven of the stove little by little each day, there will be nothing to fear from insect larvæ or their eggs. The earth as soon as baked should be placed in some secure place, and, if possible, where it will re-absorb moisture, and become aerated gradually before being used. Before it is wanted for use it should be so moistened that it is just friable. This is done by adding water from time to time, as needed, from a fine vase watering-pot.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING MARCH 31, 1877.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 18 Market Street.)

BAROMETER.

Mean height at 9 A. M.	30.11 in.
do 12 M.	30.11
do 3 P. M.	30.11
do 6 P. M.	30.10
Highest point on the 7th at 12 M.	30.25
Lowest point on the 29th at 6 P. M.	29.83

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	58°
do 12 M.	64°
do 3 P. M.	64°
do 6 P. M.	59°
Highest point on the 20th at 3 P. M.	73°
Lowest point on the 7th at 9 A. M.	54°

SELF-REGISTERING THERMOMETER.

Mean height during the night.	49°
Highest point at sunrise on the 20th.	54°
Lowest point at sunrise on the 3d.	45°

WINDS.

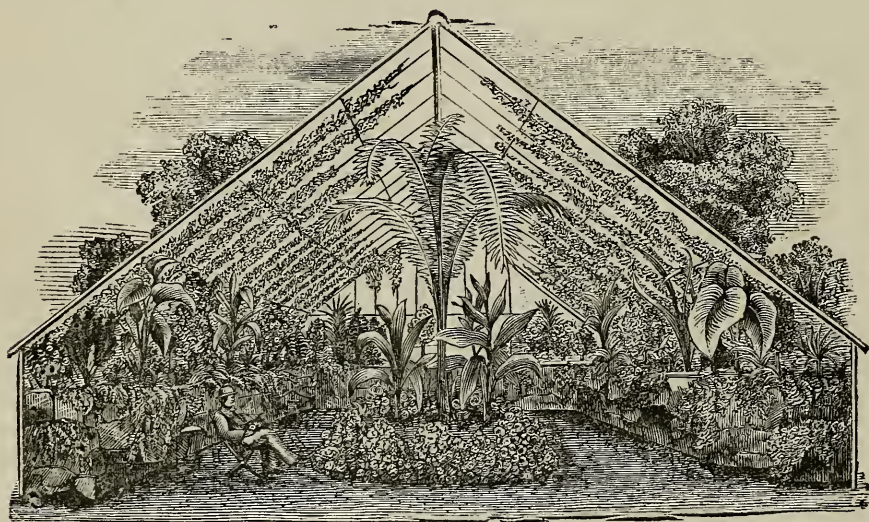
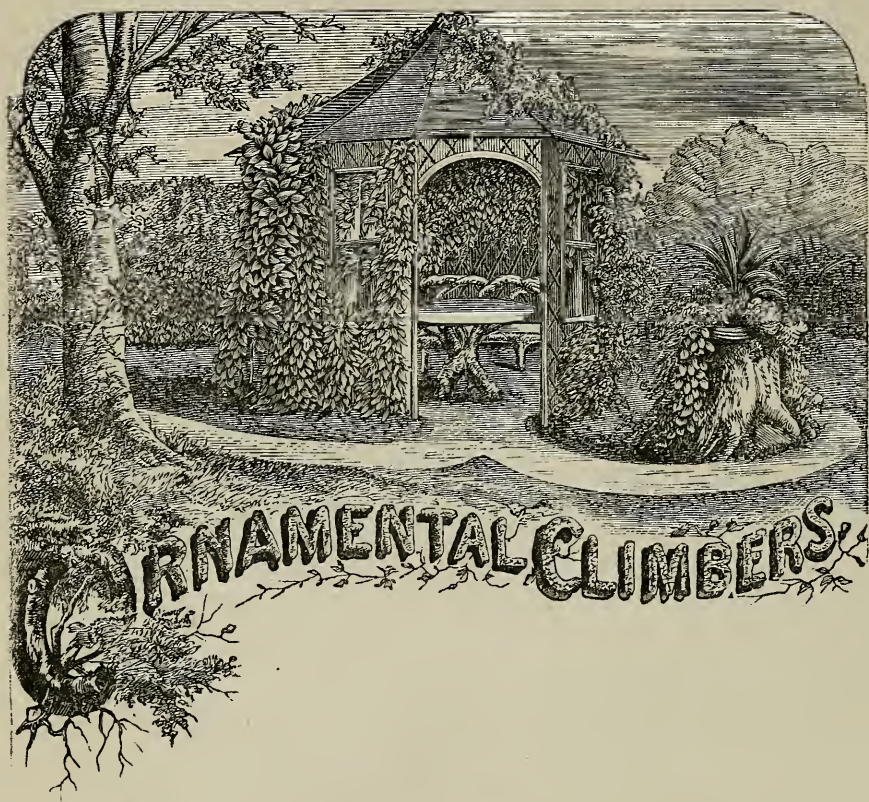
North and north-west on 5 days; south and south-west on 9 days; west on 17 days.

WEATHER.

Clear all day 8 days; cloudy on 8 days; variable on 15 days.

RAIN GAUGE.

	Inches.
1st.	0.01
2d.	0.19
3d.	0.09
6th.	0.15
9th.	0.08
10th.	0.36
29th.	0.03
Total.	0.91
Previously reported.	8.71
Total up to date.	9.62



EXOTIC CONSERVATORY.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. VII.

SAN FRANCISCO, MAY, 1877.

No. 5.

ANNUALS.

The following species of annuals, with their varieties, if well cultivated in good soil, can not fail to make the garden gay from June to November. For early spring and June flowers, dependence must be placed upon perennial herbaceous plants, including spring flowering bulbs. The Aster, now called *Calistephus sinensis*, in all its splendid improved varieties, may be considered one of the most important flowers for August and September. Snap-dragon (*Antirrhinum majus* and *nanum*) of many colors, although a biennial in dry soil, flowers the first year from seed, from July to the rainy or frost season here; Sweet Alyssum (*Alyssum maritimum*), always in bloom; double Camellia and rose improved Balsams (*Impatiens balsamina*), not good for bouquets, but, when in spikes, fine for dishes and vases; Calliopsis, formerly Coreopsis, *Calliopsis Drummondii*, and some of the newest dwarf var.; Cockscomb (*Celosia cristata*); Candytuft (*Iberis*), in various colors; Larkspur, double var.; Delphinium consolida and Ajacis; Pinks, flowering from seed the first year, or biennials; Dianthus, Heddewigii, Im-

perialis chinensis, in splendid varieties; Everlasting Flowers (*Helichrysums*) in variety; Sweet Peas (*Lathyrus odoratus*); Petunia, hybrid varieties; Drummond phlox, brilliant colors from pure white to scarlet and dark crimson; Portulaca, all colors, fine for masses; Mignonette (*Reseda odorata*); Mourning-Bride (*Scabiosa atro purpurea*), sporting into many colors and shades from pure white to almost black, in bloom from July to November; Marygold, the old-fashioned flower, and the new dwarf Tagetes signata pumila; Ten-weeks Stock (*Mathiola annua*), numerous varieties and colors, in bloom till October or November; Pansy (*Viola tricolor grandiflora*), a great favorite with all; Double Zinnia (*Zinnia elegans fl. plena*), one of the modern and most beautiful novelties; Tom Thumb Nasturtium (*Tropæolum nanum*), choice bedding plants of various colors; Four-o'clock (*Mirabilis jalapa*), a great favorite with some, but can not be used for bouquets, or any other way for table ornament.

CLIMBING PLANTS. — Maurandia Barclayana in various colors; Cypress Vine, red and white (*Ipomea quamoclit* var.); Thunbergia elata in variety; Lotospermum scandens; Cobœa scan-

dens; *Calempelis scaber*; *Loasa aurantica*; Canary-bird Flower (*Tropæolum canariense* or *aduncum*). None of these will succeed very well unless started in the greenhouse or hot-bed. The varieties of the Morning Glory, Scarlet Bean and Hyacinth Bean are well known as suitable for covering screens, walls, etc. Tall Nasturtiums are very showy climbers, and may be used for the same purpose. Then there are many other plants and flowers in our climate and soil which grow large and high enough for trellises of wood or wire, which may be used successfully for the same purpose.

TRAILING OR PROSTRATE PLANTS. — All the *Nemophias*, dwarf *Convolvulus*, *Abronia umbellata*, *Eschscholtzia*, *Sanvitalia procumbens*; *Lobelia gracilis*, with its improved varieties; *Nolana atriplicifolia*, with *Alyssum* and *Portulaca* already named.

EVERLASTING FLOWERS. — In addition to the *Helichrysums* there are *Ammobium elatum*, *Acrolineum roseum*, *Rodanthe Manglesii* in variety; *Globe amaranthus* (*Gomphrena globosa*), in variety; *Zeranthemum annuum* in variety.

TALL GROWING PLANTS. — *Cannus*, Double Sunflowers, *Ricinus sanguineus*. The following annuals may be added to this list if more are wanted, viz.: *Chrysanthemum*, *carinatum* and *coronaria* in variety; *Ageratum Mexicanum*; *Brachycome ibericifolia*; *Calceola coccinea* and *aurea*; *Centaurea*, various sorts; *Godetes*; *Senecio elegans fl. plena* in variety; and varieties of the *Silene*. Most of these last named are very pretty, and useful for bouquets. *Amarantus tricolor* and *Melancholicus ruber* and *Perilla nankinensis* are cultivated for the beauty and novelty of the color of their leaves.

WHERE honey is there you'll find bees.

A VISIT TO SAN FRANCISCO'S BROOKLYN.

Oakland, with its many old native oaks, and numerous and beautiful villa residences, gardens, and charming prospects, presents delightful and refreshing pictures to the visitor, so quickly transferred to it by ferry and railroad from the business heart of our city. Just at this time the private grounds of its citizens and the public nurseries of its florists are commencing to grow rich in the numerous brilliant, gorgeous and fragrant blooms of their various and lovely vegetation of trees, shrubs, and plants. From Telegraph Avenue we entered the well kept and fully appointed premises of James Hutchison, one of the most industrious, correct, and systematic florists to be found anywhere. His gardens, plant houses, and conservatories are kept in the most perfect order, and furnished with all the tropical, semi-tropical, and hardy stock needed in our markets, and every new and valuable plant that makes its appearance in Europe or the United States, or imported from the former to the latter, may here in due process of time be found.

We discover that Mr. Hutchison, and indeed most of our nurserymen, are turning their particular attention just now to the noble and extensive tribe of Palms. No class of plants are more worthy of their care, with their varied forms and graceful evergreen foliage, always lively and associated with tropical appearances. Many of them flourish well in the open air in our mild and genial climate. It is a rather common, but we think mistaken idea, that they are only adapted for large places where a house is devoted especially to their cultivation. It is true that the majority of them, which

are of tender habit, thrive best under such treatment, but many of them are equally suited for the adornment of a small greenhouse or large conservatory, as well as in most situations in our State out of doors. Nearly every species produces some important article well known in commerce, among the comforts of ourselves and the natives of tropical and semi-tropical regions. These productions are indicated by their popular names, as Oil Palm, Cocconut Palm, Cabbage Palm, Fan Palm, etc.

At Mr. Kelsey's establishment we noticed a specimen of a Date Palm one foot in diameter. Mr. Tisch, the superintendent, informed us that Capt. Stephens, of Fruit Vale, had refused two hundred and fifty dollars for a large one in his possession. He showed us some fine plants of *Aralia Sieboldii*, a plant with leaves of the handsome shell form, and of the purest and lightest emerald color. It is hardy, and a native of Africa. Also a variegated climber with grape-shaped leaves, which was produced from some Australian seeds, and is quite pretty. We observed a fine climbing plant—*Unikania pyrophylla*—which possesses the same habit as the *Cissus discolor*, and grows, in a conservatory, ten yards in one season, with leaves six inches long by three broad. It would thrive probably in San Francisco, with an eastern aspect. Calladiums were in fine flower here, showing skillful management. The Begonias, particularly *Begonia delecta*, presented a gorgeous and most interesting appearance; with these, and all the variegated leaved plants, Mr. Tisch seems peculiarly fortunate in his propagation and care. Among the choice collection of Ferns were *Asplenium bulbiferum* and *A. Fabianum*, of which the first is the hardiest. Among the greenhouse evergreens was *Clero-*

dendron Balfourii, a handsome plant. Mr. Tisch's Roses are entirely free from the green fly or aphides, or scale insect, which are sometimes so injurious to them. His plan with his plants is this: in September he stops irrigating them, and leaves them in this way till the rainy season. Then he enriches the soil with well rotted manure. In March he prunes them down to five joints above the ground, cut low down pretty close. He removes the old wood entirely, after which he gives the ground a complete spading. We never saw healthier or cleaner bushes, or a greater profusion of buds and flowers. Mr. Tisch will exhibit a varied display of plants at the Mechanics' Fair.

Mr. Hutchison, owing to his too large stock for home market merely, has sent a considerable quantity of it to Stockton and other interior cities and towns, and met with fair profits in sales. Some of the things which attracted our notice most in his collection were *Begonia Froebellii* (new), *Primula sinensis fimbriata punicea pleno*, a splendid double crimson scarlet variety of Primrose; *Hibiscus mutabilis albus plenus*, a superb variety with double white flowers; several new *Delphiniums* and *Dianthus*, *Phloxes*, *Pelargoniums*, *Pansies* (very fine), *Penstemons*, *Pyrethrums*, *Salvias*, *Stocks*, *Tropæolums*, *Violas*, *Wallflowers*, *Zinnias*, *Verbenas*, *Sweet Williams*, *Viscarias*, *Tacsonias*, *Sedums*, *Polyanthus*, *Petunias*, *Picotees*, *Lantanas*, *Gilias*, *Gladiolus*, etc., with many other novelties and specialities, and rare plants always arriving from all parts of the world.

We again called at the splendid Harmon villa and gardens, where we saw our friend and experienced skillful horticulturist, R. Turnbull, who has full charge of these most attractive well

kept grounds. Mr. T. is now paying special attention to Roses, all the best of which he has in cultivation, and is naming correctly, and has en route from the East many new ones (having unlimited power from his employer to that effect), including the new and highly prized Rose, "Beauty of Glazenwood." Mr. Harmon's place is well worth visiting. It is in splendid order, and possesses the best and newest of plants.

THE KUM-QUAT — CITRUS JAPONICA.

The recent maturing of this fruit in some parts of our State where the trees have attained sufficient size (and with other favorable circumstances of soil and aspect, although it is quite a hardy fruit), has awakened some interest in it. We have lately seen it figured in several English as well as American publications. The Kum-Quat is a small species of Orange which is found in both China and Japan. It was introduced into England in 1842 by Mr. Fortune, the famous botanist, who made many important researches and discoveries in various parts of Asia. It was cultivated at Chiswick, near London, England. Later there it was successfully fruited, and seemed likely to be a rather popular plant, if not fruit. In China it is grown as a shrub about six feet high, but trained to the back wall of a conservatory, it has in England reached the height of fifteen feet. The plant resembles a dwarf Orange tree, but with smaller and thinner leaves; it flowers very freely, and is very attractive in bloom; the fruit, which is about the size of a moderately large English Gooseberry, is like an Orange in miniature, having a bright and rather deep-colored orange rind, which, when scraped, gives off a highly agreeable perfume. Within these

are five cells, filled with an exceedingly acid pulp. The fruit, picked with its leaves attached, makes a beautiful ornament for the dessert, and when preserved with sugar, the only mode in which it can be used to make it very palatable, forms a sweetmeat which is a good deal esteemed. According to Mr. Fortune, the Kum-Quat grows in the greatest perfection in a portion of China (as well as Japan), so cold that the Orange will not thrive, and that in the Orange region of southern China the Kum-Quat does not succeed. This seems to us very singular, but does not, we think, militate against its success in many parts of California. It is true it is a fruit only fit to be preserved. The Chinese and Japanese grow it in pots, but it is said to do better in the open ground. The plant requires a warm summer to ripen its wood, and a rather dry winter (being impatient of much rain or moisture), and it proves hardy in many localities in our State, and in the upper Southern States, if not in some of the Middle, as in China and Japan it endures a cold of below 25°. It being an ornamental plant in both flower and fruit, and somewhat useful as well as in the way of a preserve, it is hoped that it will be more planted on this coast than it is—especially in parts where it will fruit well. The Kum-Quat will not graft upon the Orange; the proper stock is *Citrus trifoliata*, a small hardy species, which is propagated from cuttings.

This tree and fruit is not of much importance for us in the United States, except, chiefly, for ornament in leaf, flower, and form of tree, as we have so many fruits greatly superior to it; but in China and Japan where our fruits are wanting, except, mostly, in inferior sorts, all fruits which will make good preserves are much prized.

THE CHERIMOYER (*ANONA CHERIMOLIA*).

The *Alta*, in its article on the Industrial Condition of the State, states that "a Cherimoyer tree on the Guajome Rancho, in San Diego County, has commenced to bear, and its fruit, considered among the most delicious of the tropics, is fully formed and will undoubtedly ripen. The general impression is that the tree is too delicate to bear freely in any part of the State."

The native habitat of this tree or shrub is Peru. The fruit is somewhat heart-shaped and scaly on the exterior, and is counted by the Creoles as being the most delicious fruit in the world, a verdict, by the by, which Europeans, however, do not confirm. It is a tree about twelve feet high; the leaves are oval, pointed at both ends; the flowers solitary, very fragrant, of a greenish white color, and the fruit somewhat heart-shaped, with a scaly appearance on the outside; when ripe, it is grayish brown or black. The flesh is white and sweet, mixed with several seeds of the color of coffee. Baron Humboldt spoke of it in high terms; and his account is completely confirmed by the testimony of many officers who have been in the South American service; but Fenillee says one European Pear or Plum is worth all the Cherimoyers of Peru. It has been known in some English hothouses under the name of *Anona tripetala*.

Several species of this genus are cultivated in tropical countries for the sake of their fruits. The Sour-sop of the West Indies is the fruit of *A. muricata*. It is of considerable size, often weighing upwards of two pounds; it is greenish and covered with prickles, the pulp is white and has an agreeable slightly acid flavor. The *Anona squamosa* is

the fruit of a tree, *A. squamosa*, native of the Malay Islands, but extensively cultivated in the East and West Indies. The fruit is ovate, with projecting scales, the rind is thick, but encloses a luscious pulp, concerning which, however, tastes differ.

It is well enough to try some of the tropical fruits in some parts of our State, and they may be found interesting if not profitable and entirely successful. We shall speak of them from time to time.

THE STUDY OF INSECTS.

BY ENTOMOLOGIST.

No branch of Natural History deserves a more careful and thorough study than the class of insects, because none is more abounding in use or injury to man, and although California has been comparatively exempt, until quite lately, from any great ravages of destructive insects, yet we can not expect to be always so favored as to have so few difficulties with this class of creatures belonging to the animated portion of the world's inhabitants. We hear now from all parts of the State that many fruit trees, vines, and plants have been injured, if not destroyed, by pests of this nature. We must, therefore, be watchful and observant in order to counteract their baneful effects, and the more we study their habits, of course the better off we shall be. The study and knowledge of these companions, that more or less swarm around us, on every tree and flower, in the air about us, and on the earth beneath us, even on our own much favored coast, must be important and interesting to every one, of whatever mental capacity or taste. And it has been very generally so considered, for the rich and

poor, lettered and unlettered, the statesman and philosopher, manufacturer and merchant, husbandman and horticulturist, clergyman and physician, have often made this study the principal occupation of their leisure hours.

There is no class of animals with which so many persons have been occupied, and on which so many valuable and splendid works have been published, as on insects, particularly beetles and butterflies. None of earth's creatures have attracted more universal admiration than these. (See a beautiful collection of these now being arranged in the cabinets in the Natural History building at Woodward's Gardens.) Many to whom the Book of Nature is a sealed book have been enticed, by the splendor of their color and their fairy-like motions, to hunt for them in meadows, fields, and woods, mountains and canyons (like Henry Edwards of this city), to place them as ornaments in rich frame-work upon the walls of their parlors, or to nourish and raise them with the greatest care in their rooms, that they may not lose a single hair or feather of their magnificent variegated dress.

No class of animals presents so great a diversity of occupation and so many grades of society as the insects. Here we see the industrious laborer busy at his work, there, the lazy, lounging beggar; here upon the leafy boughs, or before the gates of their subterranean abodes, myriads of musicians are playing their fiddles, and there the skillful artist is building his wonderful dwelling; while above in the blue sky flutters a high nobility, clad in gold, silver, purple, and silk; fed on the nectar of flowers; and on the earth below are lurking, troublesome drones and disgusting parasites.

We have not yet any general work on North American insects, except a few numbers of the American Entomology, by Thomas Say; Major Leconte's Iconography of some genera of butterflies; and Dr. Harris's elaborate report on the injurious Insects of Massachusetts.

It is time that our people in general, and particularly our youth, should be made acquainted with a class of animals which everywhere surrounds us, day and night, and which furnish us amusement, food, coloring substances, and medicines, in order that they may be able to distinguish the useful from the injurious ones, the harmless from the noxious, and to discover those which may furnish new articles for manufactures, commerce, and domestic industry.

SOME WILD FRUITS OF CALIFORNIA.

In Mendocino and Humboldt counties, and still further north in this State, may be found the Huckleberry in all the delicious fragrance of the Eastern variety. And in addition three other varieties abound. A high bush, red and black; also low bush, red variety. None, however, have the fragrance of the blue variety. There are other wild berries and fruits in those counties and elsewhere north on our coast, such as Thimbleberry, Strawberry, Blueberry, Sal-lal, Crab-apple, and what the East has not, the Salmonberry. They resemble very much the red Raspberry the first year of their growth, but instead of dying down each year as the Raspberry, they continue to grow from year to year, until they are about ten feet in height. The young wood is covered with sharp spines like the Blackberry, but after the second or third year shed them off, and the bark be-

comes smooth. The fruit is larger and in shape somewhat like the Raspberry; color yellow or salmon. About one bush in ten bears a purple berry. It is not likely that they would flourish in dry inland valleys, as they are only to be found in damp, shady ground in the immediate vicinity of the ocean. They make a very good dish with the addition of cream and sugar, but devoid of much flavor.—*John Mavity, St. Helena.* [We found all the above fruits during a sporting trip to these counties.—ED.]

JAPAN SOIL AND MANURING.

The Japanese Empire stretches from the 30th to the 45th degree of north latitude. The average temperature and distribution of heat constitute a climate embracing all the gradations between those of Central Germany and of Upper Italy. A solitary tropical Palm, not fully developed, grows by the side of the northern Pine, Rice and Cotton along with Buckwheat and Barley. Everywhere on the chain of hills, which cover the whole country like an irregular fine network, the Pine predominates, stamping upon the landscape that homely northern character, which affords so cheering a sight to the northern traveler, who reaches these shores after having passed through the hot and luxuriant regions of the tropics. In the valleys, on the other hand, the burning south holds sway, covering the ground with a rich vegetation of Rice, Cotton, Yams, and Sweet Potatoes. Hundreds of footpaths and small ravines lead to the charming transitions between Pine and Cotton, hill and dale; everywhere there is a gay medley of Laurels, Myrtles, Cypressess, and above all, shining Camellias.

The land is of volcanic origin, and the entire surface belongs to the tufa

and the diluvium formation. The soil on the hills consists of an extremely fine, yet not over fat clay; whereas that of the valleys is, throughout the country, with some trifling modifications, of a black, loose, and deep garden mold, which, upon trial in different places, I found extended to a depth of 12 to 15 feet, being, throughout, of the same quality, though somewhat more compact in the deeper layers. An impermeable stratum of clay probably underlies this arable crust. As the clay strata of the mountains, in consequence of the frequent and copious falls of rain, give rise to a multitude of springs, which are everywhere at hand, and may thus easily, and without any great skill, be turned to account for the purpose of irrigation; so the impermeability stratum underlying the surface soil in the valleys enables the Japanese husbandmen to turn the soil at pleasure into a swamp for the cultivation of Rice.

STRAWBERRY GROWING IN CALIFORNIA.

We find in the *Pioneer*, of San Jose, an article on Strawberry growing, which will be of much interest to many in various parts of our State, and to our Eastern readers:

The largest fields are located between San Jose and Alviso, and it is probably along this road that the stranger can get the best idea of Strawberry culture in this valley. The great desideratum is water, and as this is also the artesian district, it may be called the home of the Strawberry. The most extensive growers are Judge Thomas, Chas. E. Wade, Wm. Boots, and Mrs. Shields. They have fields of from 50 to 125 acres, but there are many others who devote from 10 to 40 acres to the business.

The ground is prepared by being thoroughly plowed and thrown up into low ridges about two feet apart; on each side of these ridges the vines are planted, irrigation being accomplished by flowing water through the channel formed by the furrow between the rows. It is not unusual to see Onions and other vegetables growing on the ridges between the two lines of berries. Onions and Strawberries do not go very well together on the table, but they do in the field. The runners are kept carefully pruned, except as it is desired to make new plants, in which case they are allowed to grow to the extent necessary for that purpose. It has been the experience of Strawberry growers in this county that the plant produces more and better fruit as it becomes older. Judge Thomas has been in the business for twelve years, and the best, the hardiest, and most productive plants on his place are those which he first set out a dozen years ago.

Our Strawberry fields are cultivated almost exclusively by Chinamen. The owner of the fields makes a contract with the Chinese boss to cultivate, pick, and pack the berries ready for shipment for half the proceeds of the crop. One Chinaman can take care of two acres of vines except in fruiting time, and then it requires three Chinamen to an acre. It is to be hoped that our people will see the necessity of educating our boys and girls to this work, and thus save the community the money that is paid to the 10,000 Chinamen who are annually employed in our Strawberry fields.

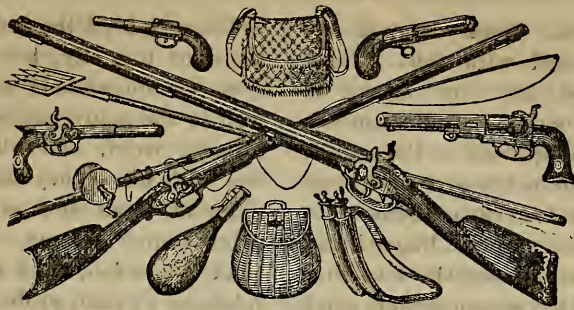
The berries are mostly shipped to San Francisco, and from there orders are filled to other portions of the State. They are packed in boxes of four to eight pounds each; the boxes are placed in chests like drawers to a bureau, and in this manner, with a reasonable

degree of care, transportation is accomplished with no injury to the fruit. The berries are hauled from the field each afternoon and placed on the cars at the different stations along the road, or on board the boat at Alviso wharf.

The price of Strawberries varies with the season. Some years the lowest figure will be $12\frac{1}{2}$ cents per pound, but in extra good seasons four cents is about the price. The market will average about seven cents after the crop begins to come in freely. We have taken considerable pains to get at the financial results of this industry. One of our oldest and most reliable Strawberry growers, who has seen the good and bad seasons of the last dozen years, says that the average net profit is \$400 per acre. The least return he has ever had was \$200 per acre, and the highest \$800 per acre. This, of course, is to be divided with the Chinamen, leaving him half, or an average of \$200 per acre per annum for the use of the ground.

The present season promises to be peculiarly favorable to the Strawberries. There has been no cold weather to retard their growth, and from present indications we will have the heaviest yield in the history of the enterprise in this county. This, although gratifying to consumers, is not of any great moment to producers. When the yield is heavy the price is low, and *vice versa*. It is a sort of self-compensating industry that yields a good return in spite of circumstances.

ARTIFICIAL CORAL FOR ROCK-WORK.—Take four parts of yellow rosin and one part of vermilion, and melt together; into this dip coal, bricks, stone and it will give them the appearance of coral, and then they can be put into fancy rock-work with very pretty effect.



Rod and Gun.

TROUTING—FISH IMPORTATIONS.

Trout fishing is now still in order for descanting upon, and, thanks to the liberty of the game laws, will remain so for months to come. This sport stirs the blood, and drives business men and others, who are anglers, to the banks of some of our numerous streams and lakes, which are so calculated to oxygenate our sanguineal circulation, and enliven the dullness of life's ordinary routine. Spring fishing for trout is more delightful than summer or autumn angling. The longing for the return of the season has been intensified by reading, during winter nights, favorite works (and there have been published many good ones of late years in the United States), on this pleasant and healthful recreation, and which treatises most true fishermen have in their libraries. They therefore once more throw the fly with renewed zest, and few are slow to seize the opportunity in these first days of the season. Nature strongly entices them to the river side, and her call is the more powerful as most anglers are lovers of her beauties—the songs of the meadow-lark and linnnet; the gambols of the graceful ground squirrel, the glow and scent of the wild shrubs and flowers, possessing unwearying charms for them. But we are wax-

ing, as usual, on this subject, poetic, and it is better to throw fishing lines than indite romantic lines on fishing. There are times when the soul is dead to poetry, and these are when we observe on the water, whether lake or river, the glowing finny beauties rising here and there and everywhere, feeding on the natural flies which fall on the surface, or frequenting the upper portion of the element to inhale the atmospheric oxygen, or playing and leaping in mere wantonness of motion. To be sure it is a little too prosaic a circumstance, and somewhat hard upon any ordinary sinner, to slip off a wet and slippery rock into a deep hole, as we and all brook anglers have sometimes done, or lose a hook in a tree branch by the throwing back of the casting line too inconsiderately, but then these mishaps are amply compensated by the enjoyment of a good bite and the lifting of a silver-sided beauty out of any of the streams that water so liberally our charming California scenery.

Although the brooks within 100 miles of our city have been pretty well fished out, even in these the supply is generally good in the spring of the year. There are hundreds of streams in our whole State in which a hook has never been cast by a San Francisco fisherman. The affluents of the Upper Sacramento, and all the small streams

north of Sonoma County are, at any rate, well stocked with fish. These streams, indeed, are very nearly in their primitive condition. No diminution of any consequence of the supply of trout and salmon has ever been caused by amateur fishermen there. The very few Indians who still linger in the country, the lumbermen who take what they want, and the sparse settlers catch some fish, and that is about all the drain that is made upon their resources, although the above parties are in the habit of paying no attention whatever to the close or illegal time. All other kinds of game besides fish are abundant throughout the northern coast range. The whole country north from Russian River is still fresh for all sporting purposes. Even within a day's ride of this city, owing to new railroads and stages, there are streams, the head-waters of which are only known to a few squatters and hunters who live on the sides of the mountains. The trout ascend during high water to the small brooklets far up the mountains, and are often abundant there when the lower part of the stream has been nearly fished out. We trust that under the game law as now intended to be enforced, though it is far from an easy thing to do so, there are some hopes among the most sanguine of us that the supply of brook trout will never be exhausted, but on the contrary greatly increased. We are now industriously restocking the streams and lakes near the city, as well as in those more distant from us, especially in the south, with our large species of brook trout, averaging about two pounds when well grown, from the Upper Sacramento and other rivers there, but as for the more distant waters of the State they will carry millions of game fish in the future, as they have perhaps millions in years past.

The people of the State, and notably those of this city, have to thank our Fish Commissioners for the late, as well as the many preceding influxes of salmon, trout, and other families of fish, with which they are restocking our different fresh and salt waters. Besides young salmon, Eastern trout, shad, white fish, black bass, catfish and lobsters, we shall probably soon obtain some more valuable species, including Royal carp, from China, Japan, and Germany. The Commissioners feel certain that during the present year especially, great progress will be made in the introduction of valuable fish into California lakes and rivers. In consequence, thousands of our citizens will be able to enjoy a day's healthful relaxation from business cares at comparatively but little expense. That whereas it now takes several days' time and a large expense to visit different sections of country for salmon, or even very good trout fishing, when, as for the last three years the same has been done, as regards salmon, from our wharves, and in our Sportsman's Club lakes, and in the future these may possibly be as plentiful in our bay and in these lakes as smelts formerly were; and what is of great advantage to us as compared to other salmon regions, the fishing here can be done in our mild, genial winters, and thereby form an extra inducement for the citizens of the Atlantic coast and Europe to visit our State. All that is needed to produce the foregoing results is the passing and enforcement of laws giving protection to fish, and a sufficient and not too scanty an annual appropriation by the Legislature to continue the artificial hatching and importation of all the best fishes for our waters.

A SMALL leak will sink a great ship.

TO TAMALPAIS VIA COLEMAN'S DAM.

The eight o'clock boat took us to Saucelito, and the North Pacific Coast Railroad carried us to the Junction, where the branch road to San Rafael comes in, and from thence we retraced our steps some distance on the railroad track opposite Sunnyside, the country residence of Mr. Worn, where the finger-board plainly directed us on our course to Lagunitas or Coleman's Dam, and beyond the upper trail wound its way to the highest peaks of the elevated coast range—the bold, abrupt Tamalpais. We were rather astonished as we passed leisurely along—we were all on foot—to notice how naturally our friend Keith had reproduced on canvas the colors and forms of nature in this region. The impression was so vivid that repeated reference was made to it by his trio of friends on their upward tramp along the wagon road that leads over miles of Wm. T. Coleman's property, which by the way seemed to extend in every direction, judging from the numerous notices we found conspicuously posted on every side, which read as follows: "Shooting not allowed on this property—Wm. T. Coleman, proprietor."

This carriage way leads through a very picturesque region, passing up into San Anselmo Valley, and on either side are numerous large stumps of some long-felled fathers of the pines, now entirely encircled with families of young shoots that have sprung out of their very decaying roots, with a vigor and freshness of foliage characteristic of its progenitors that belongs to youth and beauty. Ferns we found on every hand in most graceful forms, accompanied by an innumerable host of many-colored wild-flowers.

We were greatly surprised to find so

fine and clear a sheet of water as Coleman's Dam nestled at the foot of Tamalpais. It has a depth of fifty feet, covering a large space on the mountain side, and from this catchment San Rafael and the State Prison at San Quentin are supplied with water. We saw many speckled beauties disport themselves in its clear depths, whose faithful guardian presented himself promptly with gun in hand as we made our appearance on its banks. Upon inquiry whether he brought down his finny game with shot, he pointed to a large long-billed duck lying on the grassy slope, which he had just dispatched, saying that he looked out as sharply for that species of fishermen without permits as any of the human kind who happen along in the same manner. This was a hint we shall endeavor to profit by at some future day.

It was near noon, and the apparently close peaks had not yet been scaled. It was a long, steep, and weary path, every upward step revealing more and more of the surrounding landscape, with its regularly grooved and corrugated mountain sides running down in all shapes and angles as far as the eye could reach, diminishing and belittling everything beneath the uprearing range whose top was still many steps away. We reached the cool, refreshing, trickling spring away up its north-western flank; we cast pitiful glances at the beautiful pink and white *Fleur de Lis* scattered along the path, blooming and dying in their unadmired isolation, and anon we reached the meadow or plateau near the summit, or what we should call the saddle of the range, where a velvety carpet of the richest variegated wild-flowers gave softly way to every step we took. We were impressed with the idea that this might possibly have been a living crater at some remote pe-

riod, but we will leave that to the scientists to determine.

As we gained the Government Station, a heavy fog came slowly creeping in through the Golden Gate so that our view seaward was completely obstructed, and the hazy atmosphere allowed us but a limited range of vision in every other direction, the most free view being northward over a succession of mountain chains and valleys, the mountains preponderating as ninety-nine to one from our fanciful bird's-eye observation. Immediately before us to the east the various inlets of the bay seemed specially curved by the trained hand of a landscape gardener, with the busy hive of San Francisco running out on the tongue of one of the points of land, the tall and isolated spots of timber on the flanks of the westward range looking just like so many toy trees in a child's playground. Mount Diablo lay far to the East, and from our elevation—2,700 feet—revealed all its grand proportions, though not so abrupt and conically shaped as the peaks right around us. It was a pleasant warm day, with no wind at all. Here in San Francisco it was quite cool with a strong westward wind. We could see by the drift of the fog below us that we were entirely out of the reach of the prevailing current of air, and would have considered it no hardship to have remained on the mountain top over night without any shelter.

We crossed peak after peak to the flag staff where a record of visitors is kept, and then circled round and above the land-slide on its southern side, which is so plainly visible from San Francisco, passed down the steep eastern declivity over gradually lessening but seemingly interminable ridges until we reached the fine residence and grounds of Mr. Kent, then out and on

to the San Rafael road. The long trip having delayed us beyond the afternoon train, a kind passing team carried us to San Rafael, from whence we came back to our haunts of business early the following morning, greatly pleased with a trip we had contemplated taking these past eighteen years.

San Francisco, May 1, 1877.

COOKING FISH.

Fish should be washed as little as possible, and white fish, after being cleaned and wiped with a damp cloth, should have the stomach stuffed with salt for an hour or two before cooking. Fish should be put on in cold water so that the inner part may be sufficiently done, and also it is less liable to break. This rule holds good, except for very small fish, or for salmon boiled in slices, when boiling water should be used. The time will depend on the kind and size of the fish, but it may be easily known when it is ready by drawing up the fish-plate and trying if it will separate from the bone. Here, as in other things, practice is better than all the directions that can be given, as so much depends on the strength of the fire and the size of the fish. A little salt and vinegar should always be put into the water, and some prefer their fish boiled in what is called a *court bouillon*, and this is how it is done: Lay the fish in the fish-kettle with enough cold water to cover it, add a glass of wine or vinegar, some sliced carrot and onions, pepper, salt, and a laurel leaf, a bunch of parsley, a faggot of sweet herbs, or some of the same powdered and tied up in a muslin bag. These seasonings impart a fine flavor to most boiled fish, excepting salmon, and for fresh-water fish. They are considered very useful for getting rid of the muddy taste they often have.

Frying fish may be fairly well done by just putting sufficient fat in the pan to prevent it sticking, and cooking it till of a fine brown color; but the artistic mode of frying fish is what is called the wet process, which may be simply described as boiling it in fat. There are different opinions as to what kind of fat answers best, but all agree that butter should never be used, as the expense is great, and the color never so good. Lard is considered by many to be the best frying medium; but Carême, the great French cook, gives the preference to beef fat—not, however, the dripping from the roast, but lard made by melting beef suet instead of the fat of the pig. What we recommend to families as best and most economical is clarified dripping, that is, the fat from the joints while roasting, poured into boiling water, and removed in a cake when cold. But whatever the medium, the great point is to have the fat at a proper temperature before the article to be fried is put in. The skillful cook can see the blue smoke rising just at the boiling point, and then she knows it is time to put in her fish; but for those who are only acquiring experience, it is safer to throw in a bit of bread, and if it takes a fine color in a minute or so, then the fat is hot enough, and the fish may be put in. This is the cardinal point of successful frying. As Brillat-Savarin says, "It all depends on the surprise," that is, on the fat being hot enough, otherwise the fish will be flabby and greasy instead of crisp and appetizing. Another point to be attended to is that the fat be deep enough in the pan to cover the fish, which should be put in a wire basket that will fit easily into the pan of fat and then no turning is required. The same fat will do again and again for twenty times, if necessary; all that

is needed is to strain it into boiling water; when cold take it off in a cake, wipe off the water on the under side, and put it by for use, of course only to fry fish again.

A QUEER FISH.

Mr. Throckmorton, one of the Fish Commissioners, gave to the California Academy of Sciences, not long since, a specimen of fish caught in the salt marshes in Marin County. The fish looks like an ordinary "bull-head" or sucker, and is probably familiar in appearance to many. Its peculiarity consists in its mode of life. Some of Mr. Throckmorton's land beyond Lime Point is ordinary marsh land, and he several times observed Chinamen at work at low tide, with shovels, apparently digging into the banks of the little creeks. A few weeks ago he went down to see what they were about, and was surprised to have a Chinaman answer his question by saying he was "fishing." Fishing with a shovel was a new experience to Mr. Throckmorton, although he has been for many years an enthusiastic sportsman.

On examination he found that the bank showed numerous round holes at about the half-tide mark, and the Chinaman took the shovel, sliced off some of the bank, and hauled several fish from one of the holes.

The holes are similar to those made by swallows, and are in such a position that the entrance is under water about half the time. The tide rises here about six feet, and the mouths of the holes are about three feet below high water mark. They go straight into the bank a short distance and then turn down, so that when the tide falls below them they are still filled with water, although the entrance may be two or

three feet above the water at low tide. They seem to have more the habits of an eel than an ordinary fish, and the skin is also eel-like. Mr. Throckmorton says the flavor of the meat is also similar to an eel. The Chinese laborers gather great quantities of them at low tide. A fish living in a hole in the ground like a squirrel is something new here, we believe, nor do we recollect of their having been found elsewhere.—*Pacific Life*.

NEW GUN AND FISHING TACKLE STORE.

J. Bluemel, a well known dealer in the above articles in this city, has opened a new depot for them at 411 Montgomery Street, near California. Here will be found by sportsmen a complete assortment of everything relating to the gun and rod, very neatly arranged in show cases, and most tempting to the eye of the lovers of shooting and fishing. Mr. Bluemel is a practical man in these matters, and repairs every description of instruments used in the field or on the water. He will be found a worthy additional member of several similar well furnished firms in our city engaged in the same business.

APPLE trees must be thoroughly manured to produce the best results. The soil can not well be too rich, and wood ashes is one of the best fertilizers, though almost any kind may be employed successfully; loam, leaf mold from the woods, and any kind of manure will give good returns. If in July the leaves are a rich, dark green the tree needs no fertilizer. If they are of a yellow cast the tree is starving and must have food, unless infested with borers or standing on wet ground, where it is impossible for them to remain in a healthy and fruitful condition.

Selected Articles.

OUR CABIN HOME.

BY L. HARROD BELL.

Traveler! whereso'er you roam,
Wilt come and see our forest home?
A cabin on a gentle slope,
Made rude and rough—but built in hope.

Near stand the oak trees, straight and tall,
And green grass groweth under all.
Back in the wildwood's waving shade,
But yesterday the red deer played.

Bright in the golden sunset's glow,
Broad valleys glisten far below;
While mountains frown on either hand,
Upon our wide-spread table land.

The dog-wood, with its fields of snow,
The graceful maple's scarlet glow,
Holly and hemlock, with the pine,
Their wealth of beauty all combine.

Iris and violet brightly blue,
Skies of the rarest azure, too.
Home of the happy humming-bird,
Come where the whippoorwill is heard.

Springs of crystal, streamlets pure,
And waters cool that cleanse and cure,
Breezes soft all summer long,
While short the north wind's winter song.

Pomona's promised land, her pride;
Thy slopes shall yet be decked and dyed
With hue of apple, grape, and pear;
With berries bright and cherries rare.

When bleating flocks shall crown thy hills,
And meadows wave beside thy rills,
Then shall the farm-house, ample, wide,
And church spire rise up, side by side.

But wait not till the fields grow glad,
Come while the hills are forest-clad,
Come while the red deer still doth roam,
Come to our mountain cabin home!

MAKING THE WILDERNESS "BLOSSOM AS THE ROSE."

Sposati's gardens, in the northwestern part of the city of Stockton, are a perfect wilderness of flowers at this time of year, and the air is heavy with the intoxicating perfume of the myriad of blossoms. It is now the height of

the season for Roses, and although Roses bloom there the year through, every bush is now loaded down with flowers of every conceivable hue and color. The varieties represented there number not less than 100 of the choicest kinds, and their cultivation, in the perfection to which careful culture has brought them, is a delight to the eye. A large number of other flowers are in bloom, and we doubt if any garden in the State can show a more gorgeous display of blossoms. The rapid improvement in this place is another illustration of what can be done in California with water and cultivation. Four years ago the block of land comprising this miniature paradise was barren and destitute of vegetation, with the exception of six large oaks of the weeping variety, to be found nowhere but in California. Two windmills were erected, the garden laid out, and the improvement began. In that time evergreen trees have grown from little sprigs to towering symmetrical forms twenty feet high. A small grove of Orange trees have reached a height of seven to ten feet, and are preparing to bear fruit. Other trees and vines of choicest varieties have grown proportionately, until now the garden is one of the most attractive places in the city. The gardener, Mr. Cameron, who leased the place and has accomplished the pleasing transformation, makes a good living by the sale of bouquets and plants. To further describe the beautiful spot would be unnecessary, as all Stocktonians are familiar with it, and strangers could get no adequate idea by the description, but we cite it as an encouraging example of what water and cultivation will do on a small piece of ground in California. We have the finest climate in the world and the most fertile soil in the State. All we need is water.

PLANTS IN LIVING OR SLEEPING ROOMS.

—

A lady writes as follows: "I have about fifty different kinds of plants in my sitting-room up-stairs; this room adjoins our sleeping-room, and my husband is afraid it is not healthy. This is the only room I can keep my plants in, and it is well ventilated by a window lowered from the top; my room is very light, for the windows are large and reach the floor, thus affording plenty of sunlight to the plants. My husband, as well as myself, is a lover of flowers, and we do not like to be without them, and, therefore, ask your opinion of this matter."

Growing plants, vegetation in general, is the means nature employs to purify the atmosphere; the gases which are the products of respiration, and of the decomposition of organic matter, either vegetable or animal, are assimilated by the growing plant, or converted into its tissues. In the wondrous laboratory of nature these processes are constantly in operation, so that all organic substances, in their turn, together with all the effete products of animal life, serve the purpose of sustaining vegetation. The process of this assimilation of matter or food in plants is a direct result of the action of sunlight, though there is reason to believe the process is not wholly intermitted during the night, but that the peculiar action induced in the plant by the direct sunlight is continued with a diminishing force in the hours of ordinary darkness; probably but little new matter is received into the plant at night, but the process of assimilation is in completion. The facts and experiments on which these deductions are made could be given in detail, but those curious in this matter we would

refer to the writings of vegetable physiologists.

So far, then, as growing plants are concerned, we have a clear case, and can say positively that they are not only not injurious, but actually beneficial. There is, however, another view to take of the subject, and that is in regard to blooming plants. The perfume of some flowers is not only disagreeable to some persons, but, when they are exposed to them for some length of time, affects them with headache, nausea and febrile symptoms, more or less aggravated—especially is this the case with those peculiarly heavy odors, given off by some varieties of Hyacinths, Tuberoses, Jasmines, Orange blossoms, and some other kinds. Of these effects there is no question, and all such plants should be avoided by those sensitive to them, and, probably, it would be well for any one not to have many such plants in a sleeping room, but the caution is hardly necessary, for it is seldom that any great amount of bloom is attained in house plants in the winter. Again, the ventilation that is necessary, and that in every well regulated room is given, secures from all harm, in ordinary practice, from the odors of flowers.

A bouquet left standing in the same water for several days, as is sometimes allowed, may become quite offensive, but this case of vegetable decaying matter is far different from the living plants. A light burning in a room, or a small animal like a cat or dog occupying it, will vitiate and destroy the atmosphere to a very sensible extent, but who objects to their presence on this account? The least care in ventilation corrects it all. In this connection we may well requote an extract from a note we published last year from the editor of one of our medical journals. He says:

“I think plants could be used as a sort of vitaometer. The value of plants in a health point of view is not yet appreciated as it will be. A room where plants do well makes a good living room. The three sources of ill health in in-door life, in winter in particular, are first, super-heated air; second, too dry air; and third, an air loaded with carbonic acid. Regulate the first two conditions so plants will live and thrive, and they will rapidly absorb the acid. Under our plant stand my wife has a long tray of water, which keeps the air moist by evaporation, absorbs the carbonic acid, and our plants are the wonder of my patients, and the health of our rooms. I can thus point many a lesson in hygiene.”

In conclusion, then, only discriminating against those plants the odors of which we know to be disagreeable or injurious to us, we can safely say that plants in living or sleeping rooms are beneficial in purifying the atmosphere, and that a room with more or less of thrifty growing plants has not only an air of refinement, but literally a purer air than without them.—*Vick's Floral Guide*.

TREE AND SHRUB PLANTING IN GARDENS.

In small gardens it is advisable to keep the view from the entrance, over the lawn to the mansion, free and open; it should never be interrupted or blocked by large, compact trees, or tall, dark, and stiff evergreens, which are so often misplaced, by incompetent planters, in front or too near to the building. The gate-planting, as well as small belt-plantings, to a considerable distance on both sides from the mansion, are screen and frame enough for limited grounds, but the lawn in front of the mansion should be embellished

by a few fine flowering shrubs, with variegated leaves, etc., or with fine dwarf or spreading evergreens, groups of Roses, etc., on which the eye will rest with pleasure.

In large gardens and parks, where a distant view from the entrance over an extensive lawn, to a lake, to a monumental structure, or to a remarkable point in the perspective, or the course of a straight drive opposite the gate, is not expressly intended or required, a fine light group at a considerable distance from the gate, and large enough in proportion to the mass of foliage, represented by the gate-planting, will exclude the distant view in a pleasing and sufficient way. Only trees and shrubs of a loose and graceful habit can be used for such groups, opposite the entrance, and they should always be placed in the lawn, further off from the entrance, if the trees of the group are of a vigorous and high growth. Such well-arranged planting is like a greeting and welcome to all visitors of taste. Frequently the first pleasing impressions last long, and disagreeable ones may render the observer unfit for the enjoyment of pleasing objects and scenes. We, therefore, regard the planting of which we have spoken as of great importance.

The more massive and imposing the gate-planting is, the more light, loose, and graceful must be the grouping opposite, and even the contrast to the belt-plantings, or other groups in the vicinity, should not only be shown by lighter or darker green of the foliage, but also by the graceful habit of the trees, and the easy, loose, and free arrangement of the group itself. If there be, for instance, two large, well established White Pines (*Pinus Strobus*) as standard trees on either side of the gate, and *Pinus sylvestris*, *P. austriaca*

et *rubra* (Mchx.) form the skeleton for the extension of the gate-planting, then only a few fine specimens of *Pinus excelsa*, without any undergrowth, will give the best effect for the opposite group in the lawn. In such case solitary planting is quite sufficient; this beautiful and imposing Pine, with its long, slender leaves, through which the winds send many a sigh, has the desired effect.

Another pleasing group may be arranged by several fine specimens of Hemlock Spruces mixed with White Birch trees, but without undergrowth. A complete group formed of *Larix Europæa*, combined with fine specimens of *Glyptostrobus*, *Pseudo-Larix Kaempferi* and *Pinus Canadensis*, surrounded by *Retinospora filifera*, *leptoclada*, *obtusa et plumosa*; *Biota filiformis pendula*; *Juniperus chinensis pendula*; *Ephedra monostachya et distachya* will also answer the purpose very well. The turf in the vicinity of this group, and the foregoing plantings, can be embellished with some *Yucca filamentosa*, *Mahonia japonica*, *Bealii aquifolia*, and *Hydrangea Otaska*.

If the gate-planting contains deciduous plants only, then the opposite group, but without undergrowth, may be arranged with a few fine specimens of *Gleditschia triacantha* var., *horrida*, or else a complete group may be composed of three *Alnus imperialis asplenifolia*, with a few *Betula alba pendula*, *alba lanciniata (asplenifolia)*, and with *Cornus alba Sibirica* as undergrowth, will also give a very beautiful and pleasing effect.

A group with pinnated foliage may be formed by a few *Negundo fraxinifolia*, several *Negundo frax. fol. variegatis*, *Rhus glabra laciniata*, *Sambucus nigra aurea et filicifolia*, and finished by *Robinia hispida* (on their own roots)

and *Spiraea sorbifolia*. The turf in the vicinity of this composition can be decorated by a loose and scattered planting in the lawn near to the group, and for which we recommend *Hemerocallis fulva*, *flava*, *Kalmia fol. variegatis*, *Asphodelus luteus*, *Pardanthus chinensis* and *Tritoma Uvaria*.

If *Prunus Maheleb*, because of its fragrance, is desired for such group, then *Cratægus oxyacantha splendens*, *Cratægus coccinea eriocarpa*, *Prinos verticillatus*, *Kerria Japonica* (*Corchorus*) and *Spiraea prunifolia* et *Reevesiana* can be added; and for the turf: *Pæonia arborea* et *herbacea* varieties, *Clematis integrifolia*, *Delphinium elatum*, *Hydrangea paniculata*, *Hibiscus palustris* and *Baptisia australis* are the best and most showy plants.

WATER CRESS CULTURE.

Wherever there is spring water running in open ditches or small brooks, Water Cress may be grown. The most favorable conditions for its growth, says the *Toronto Globe*, are a gently flowing stream of water, from three to six inches deep, with a gravelly bottom, underlaid with loam, and fed by springs of uniform temperature. On a neighboring farm rises a strong spring, on which, some four or five years ago, Water Cress seed was sown. Now there is a complete mat of plants, not near the spring only, but all along the stream for a mile or more, pieces of branches and roots having occasionally been torn off and carried down by the current to some quiet places where they took root. In the sheltered bays and nooks of this brook, where alternate layers of muck and gravel were washed on, the plants seem to luxuriate the most.

Where similar conditions exist naturally but little labor is necessary to

establish a Water Cress bed sufficient for home use, but when more extensive plantations, otherwise than along the margin of a brook, are to be made, considerable labor may be required. If the land to be devoted to this culture does not contain enough gravel or coarse sand, this element must be supplied before planting; a covering of from three to four inches will be sufficient. Where the land is entirely and constantly overflowed all that is necessary is to cut off rooted branches of old plants and set them out in places where the water is about six inches deep, and to place a stone on each root to prevent it from being washed away. A small stream running through marshy ground, however, offers the best opportunity for a large plantation.

In this case ditches three to four feet wide, and as many feet apart, should be dug rectangularly from the Water Cress as far as the water will follow. The depth of the ditches must be arranged according to the medium level of the stream, in such a manner that the water in them stands at no season lower than three inches, nor for any long time more than six inches. By means of a dam with sluiceway the water can readily be kept at uniform level. At the bottom of each ditch the cuttings are placed about two feet apart each way, or closer if enough roots can be had. Where old plants are not attainable seed may be sown in the shallowest parts of the ditches, and the plants grown therefrom used for propagation, but of course a year's more time will be required to establish a plantation from seed than from cuttings. The month of September is the best time for sowing the seed as well as for planting.*

* At the old landing at Saucelito there is a small stream fed by a brook which is filled with Water Cresses.—Ed.

AUSTRALIAN BOTANIC GARDENS AT
MIDSUMMER.

These gardens are now in the height of their glory as a spectacle for the eye. Midsummer is fully on us. We have had more than enough of stimulating sun, and just *quantum suff.* of refreshing rain, and so things look perfect; the blaze of color, as seen from the foot of the hill near the Lily ponds, is gorgeous in the extreme, and is greatly aided by the drooping feathery plants of the Amaranth genus, in yellow, magenta, brown, and other colors. February is the life month, and August (the corresponding month of winter), is the dead month of the year in these gardens, when everything is pruned, and cut down, and earthed up, and looks homely and bare, albeit in full readiness for the spring of September and October, when the fast "southing" sun shall call the plants to life and vigor again. Meantime our business is with February and not with August, the present spell of easterly, southerly, and cool weather, reft of its usual accompaniment of too much rain, renders these gardens grateful alike to eye, nose, and lungs just now. As a proof of the very favorable season that we have had, the great pink *Nelumbium* has attained the largest growth hitherto observed here, some of the leaves (which rise on a stalk, and do not float as those of the *nymphæa* do), measuring four feet across, and the flower thirteen inches! No description can do justice to the exquisite color of the so-called "blue" water-lily of this colony; it is not blue, nor white, nor lilac, nor mauve, but has a blended dash of all of them, and is lovelier than any; and a Swiss or French dyer who could color a muslin dress with that same hue, and reproduce it faithfully, would

make his fortune and lead the fashion in Paris and London for the summer season, and the "new color" would bear his name forevermore. It is a color suggestive of summer afternoons, of lawns, of croquet, of classic villas, "swell" society, and "five o'clock tea" in the garden, with greyhounds, spaniels, pretty girls, and rosy children grouped about "miscellaneous like." To resume: On the grassy flat at the foot of the hill the indigenous and imported grasses that have been introduced unite to form a thick, well kept sward, and flourish all alike—as far as can be seen. One of the most strikingly handsome, as well as curious, trees in the gardens is the *Kilgeria pinnata*, from India; its branches bear a kind of drooping flexible vine rope or liana stem, each of which terminates in a large spike of flowers, hanging downward of course; while, at various parts of the said rope pendants, hang huge seed pods, like in shape unto the weights of an extra large cuckoo clock. It is a most eccentric looking tree. Several varieties of the Mango just now are in fine bearing, and the Wine Palm of the West African coast was never more juicy and strawberry-like in flavor than it is in this most auspicious of seasons for tropical fruits. The gorgeous and many-colored *Lagerstroemia* blazes its splendors in the sun in all parts of the garden. The over-luscious Jack fruit is well podded, but will not be ripe for another month yet. A few blossoms still linger late on the *Poinciana regia*, now two months past its prime. The sweet-scented *Murraya exotica* is also just "off," and its light, refreshing odor—so reviving after the heavy, sickly *Gardenias*, with their ball-room fumes, have oppressed one's head, is, *pro tem.*, out of season. The *Terminalia* of Queensland is a hand-

some shade tree of great size, with fine sprays of flowers in scent like the Elder blossoms, as indeed are also many other tropical ones, and its large oval leaves form a fine canopy overhead. The Fern and Palm Island in these gardens has no cultivated rival in Australia. It looks like a little bit out of Paradise, with its graceful denizens cutting the air in nearly every imaginable shaped wave line and droop curve that forms of beauty could well assume. The Staghorns look supremely healthy in condition and size, but the New Zealand Tree-ferns, as might be expected, are not so flourishing as the Queensland ones, and both much resemble their brethren of Norfolk Island. One Palm from Madagascar is like an exaggerated sugar-cane; it is called the *Areca lutescens*. In the various shades of green that adorn this little island the following show out well, viz.: the Traveler's Tree of Madagascar and the Toddy Tree of India and Cape York, known as the *Caryota urens*. Moving away from the island we find the Pampas Grass of South America in great fettle, with its full bloom high up in the air. The Poplar Tree looks dreary enough when lining in rows the roads in some of the flat parts in South-western France, and it is not much to look at in the month of August in these gardens; but just now its spire-like form of mantled green affords a fine foil to the spreading East India Laburnum that grows near it, the latter bearing plentiful sprays of yellow flowers with a fresh cowslip sort of scent on them; and *apropos* of scent, we may tell the reader that the blossoms of the "Bloodwood" tree, a species of *Eucalyptus* now in full bloom in the bush, are one of the most useful flowers for imparting a lasting perfume to boxes where linen is kept.—*Queenslander*.

THE DESERT PALM FOR PAPER MAKING.

Paper as a factor in manufacturing processes is beginning to take leading rank. A few years ago its mission was supposed to have been fulfilled when it passed through the printing press, served the purposes of the writing desk, or was employed in the lighter fabrics for toys and ornamentation. Now, houses, locomotive wheels, barrels, furniture of various kinds, and a hundred nameless articles, are fashioned from it, and found to answer as well, if not better, than the wooden and iron structures it has to some extent supplanted. In fact, a number of new trades have sprung into existence, which were unknown till paper was introduced as one of the popular and profitable industries. Since its demand has become so great, it is important to know what productions of the vegetable kingdom are best adapted for its manufacture. Human ingenuity keeps pace with the demand in this respect, and experiment added not a few textiles to the number now employed for paper making.

California appears in the list of contributors to the raw material. Certain parties have been engaged in reducing the Desert Palm (*Yucca draconis*) to a pulp, which is shipped to Philadelphia, and there manufactured into the finest and whitest qualities of paper. About 40,000 pounds of this pulp have already been shipped East over the Central Pacific Railroad. The gentlemen at the head of the enterprise have erected machinery, which is propelled by steam, to reduce the fibre, and intend to go largely into the business.

A gentleman of this city, who appears to be interested in the enterprise, writes to an up-country journal, communicating certain facts concerning the

desert Palm and new industry, from which we quote.

The Palm, he says, grows in alkaline deserts where there is not an average annual rainfall exceeding four or five inches. The whole Mohave Desert, from Tehachapi to the Colorado River, probably about forty thousand square miles, contains large groves of this tree. The paper pulp is manufactured from it at a mill in the Soledad Canyon. It attains an average height of about fifteen feet, branching at the top, and will average about six inches in diameter. Its particular advantage as a paper-producing plant consists in the fact that the whole body of the tree is fibrous, and that after the earthy matter is removed every portion becomes paper pulp.

Among our recent California developments none gives greater promise of becoming important than this, and if the Cactus is found to answer all the useful purposes that is predicted for it, the world at large will be benefited as well.

Editorial Portfolio.

OUR FRONTISPIECE.

SUMMER HOUSE AND TROPICAL CONSERVATORY.

Our pictorial embellishment comprises, this month, a summer-house with ornamental climbers, and a conservatory for tropical plants. Both these structures can be made very handsome.

THE SUMMER HOUSE.

An arbor may be formed of wood or wire work. The latter, of course, is the most durable, as well as light in appearance, though nice lattices and trellises may be made of the former material. The summer-house or arbor offers shade and a place of rest in gardens and grounds, and hence should

be placed in a spot where rest will be most agreeable; a good view, also, is often appropriately chosen as a site for an invitation to rest. Rustic arbors may be shaded with fruit trees, vines, Cherry and other bowery fruit trees and shrubs, Ivy, Clematis, Everlasting Pea, Yellow and White Jasmine, Virginian Creeper, Stauntonia, etc., are also useful, and make graceful screens. Italian and Chinese summer-houses should be more trimly decorated, and none but the most elegantly arranged climbers led over their finished arches and lattice work. A summer-house need not be utterly hidden, but it ought not to stare straight out upon us from a back wall, its plain lattice-work without one creeping tendril to cool and comfort it, and its interior visible to every gazer, as if it were anything but a place of shade and rest. Though you never use it, it must appear fit for use or it is no ornament. It should be well shrouded with greenery, be easy of access, sufficiently inviting to attract a stranger, yet quiet in tone, and of a chaste pleasing outline.

For garden seats and arbors where rustic wood-work would be inappropriate, those of metal work will be found of the greatest value. Messrs. Hallidie & Co., of California Street, and Berhens, of Market, produce many fine examples of artistic iron and wire-work—chairs in all kinds of beautiful patterns at moderate prices and of incomparable beauty. The obdurate nature of the metal is entirely overcome in the elegant traceries, waving lines, and light flowing scrolls which adorn these admirable pieces of furniture and ornamentation for gardens and villa residences, etc.

Where shady trees invite the wanderer to a seat, how pleasant it is to find the means of rest and shelter in a gar-

den. What is more delightful in our warm interior valleys, in California especially, when the sun burns in Leo, than to lounge in a cool shady recess, with a favorite volume in hand. To us there is no better vindication of a summer-house than the opportunity it affords for the quiet enjoyment of a book, or an afternoon nap. We have often had a bowery reading-room of this sort in the country, and would have almost given up flower-growing before we would have relinquished this most exquisite of pleasures.

THE CONSERVATORY.

A tropical conservatory is a more refined and expensive pleasure, and none but the wealthy can possess a complete one. The conservatory differs from the greenhouse only in the plants of the former being in general planted out into beds prepared for them, while those of the latter are always kept in pots and placed upon stages. The general intention of the former is also to contain large and fine specimens, while in the latter the plants are usually, and always ought to be, kept pretty small and young by repeated propagation. The most proper situation for the conservatory is either in the flower garden, where it should be a detached structure, or adjoining the mansion, of which it may be said to form a part. The principal object to be kept in view should be the admittance of abundance of air and light. There are now conservatories built to cover a very large space of ground, but these are generally national ones, or those belonging to people of princely fortunes; in these the capacity is almost sufficient to admit of the tallest exotics attaining their native size. If exotics are well cultivated by people of sufficient means, in houses not exceeding twenty or twenty-five feet in height, all that is reason-

ably expected from them may be obtained. The idea of exhibiting exotic trees of their full size is absurd, and can answer no useful end, even if practicable.

In regard to form and size very much ought to be left to the taste of the owner; we would only remark here that all curvilinear lines, although beautiful, are more expensive than plain ones.

Conservatory plants planted in beds, not only grow too luxuriantly, and after two or three years require to be reduced in size by severe pruning, or removed altogether, but they do not flower as well as they would in pots of a proper size, neither can they be removed in case of sickness, or at those periods when they are out of flower, or set in the open air during summer.

In regard to management, water must be used cautiously, so that the plants neither become too dry at the roots, or soddened with an excess of it. Frequent watering by the application of the syringe is beneficial in a two-fold light: it imitates both rain and wind, first, by refreshing and cleansing the foliage and branches, and by the movement which the force of the water causes, strengthens and invigorates the shoots and stems. During summer this species of watering should be applied twice or thrice a week, and during winter once or twice every two weeks.

With the exception of the climbing plants, we should prefer to see all others grown in boxes, tubs, vases, or pots, according to their various sizes, kinds, and habits. All dead, sickly, or deformed plants should be excluded from this kind of structure, and the very operations of watering, cleansing, and arranging should be carried on early in the morning or late in the evening, so that during the day the whole

may produce a perfect whole, and be fit for the inspection of the owner as his drawing-room or picture gallery.

We are again indebted for the plates in this, as well as in the last No. to the courtesy and kindness of Col. Warren, the veteran pioneer editor of the *California Farmer*.

WORK FOR THE MONTH, AND DESIRABLE SHRUBS FOR PLANTING.

By the time this number of our work reaches its readers planting can not be resorted to with much prospect of success, unless we should be favored with copious showers from the clouds, or artificial irrigation can be adopted.

We have been pretty free from any late frosts, and more than a good average crop of all kinds of fruit may be expected.

The flower garden is now in its glory, Roses, Geraniums, Pelargoniums, Heliotropes, Pinks, Pansies, Fuchsias, Verbenas, Petunias, Stocks, and numerous other flowering plants are displaying their masses of blooms, and are filling the air with their exquisite perfume. We must not neglect to remove all flowers as soon as they begin to wither; nothing looks so shabby, or acts so detrimentally, by absorbing the vitality of the plants, as old and half decayed flowers; yet how common a thing it is to see this process almost entirely omitted. The plants need all their strength and resources to develop the remaining buds, and to form their new growth. We always nip off the seed cases of Roses and other flowers not wanted for their seeds, after they have done blooming, knowing that maturing the seed exhausts the strength of the bushes.

Tulips, Hyacinths, Narcissus, and such like bulbous spring flowers are

now things of the past. Their foliage will soon wither and decay, and it is most important that their place should be filled with some summer flowering plants. Mignonette is an excellent substitute, and many annuals which we have mentioned and described at various times in the course of our magazine, will assist for the same purpose; some of them, such as the Asters, Balsams, etc., may be safely transplanted to such beds, if they have been reared in pots or boxes, or in some other protected place. While your garden is productive of a profusion of flowers at the present time, do not neglect to provide for the future. You can have your beds covered with flowers all the year round if you will take the proper measures at the suitable time. The prices of plants have become much more moderate than they were a few years since. The very best Geranium that can be grown in a four-inch pot can be had now for 25 cents, and even is sold for less. Indeed, all kinds of trees, shrubs, and plants are down in price in proportion.

All summer-flowering bulbs must be planted out now. Don't forget to plant also a few Dahlias, Gladioli, Amaryllis, Tuberose, Tigridias, and Lilies. If you are desirous of having these in your collection, you must plant them now.

Greenhouse and conservatory plants are pushing out rapidly; water may now be given more plentifully. Give air from morning until 2 or 3 o'clock in the afternoon. The sun acts powerfully through the glass, and to prevent the foliage from being scorched, white-wash the glass with a thin coat. Insects make their appearance everywhere; fumigate once a week or two by burning up some tobacco stems; keep the room closed while you are do-

ing this. Search your Camellias, Cape Jasmines, and other greenhouse shrubs, and remove any spiders or scale-insects which you may find on the under side of the leaves or along the stems. During very warm days it will be beneficial to most of your plants if you give them a syringing.

If any of the tender seedlings you may be raising make their appearance, shade them well during bright days; this will protect the young plants, and also obviate the necessity of watering so freely. Transplant the young seedlings as soon as they have formed three or four leaves, water immediately after transplanting, and shade well for a few days. This is best done by suspending a newspaper over the plants, which you may rest upon a few sticks placed here and there.

Last month (April), in gardens where there are good and varied collections of plants aimed at, we may, or ought to see the the *Pyrus japonica*, both scarlet and white varieties; *Jasminum nudiflorum*, or naked yellow-flowered Jasmine; *Lonicera Standishii* and *L. fragrantissima*; *Chimonanthus fragrans*, *Forsythia suspensa*, and *F. viridissima*. For the months of May and June, *Spiræa grandiflora*, *S. Reevesii* and *S. crataegifolia*, *Deutzia crenata*, *Prunus triloba*, and *P. sinensis*. Among the *Diervillas*, erroneously though commonly called *Wiegeliæ*, we have, or ought to have *D. floribunda*, *D. rosea*, *D. amabilis*, flowering here a second time in October and November, or even earlier. Then about this season we have in choice garden grounds *Tree Pæonies*, *Snowballs*, *Viburnum macrocephalum* and *V. plicatum*, *Hydrangea quercifolia*, and *H. paniculata grandiflora*, and then there is *Vitex Agnus castus*, or Chaste tree. Other shrubs, also, as *Spiræa callosa*, and *C. alba*,

these having as a companion *Buddlea Lindleyana*. We must not pass over the *Rhododendrons*. To wind up this brief description of fine plants and shrubs, supposing them to have been freshly planted, we advise that after that, the tops be pretty well cut back; this will cause a strong growth of young wood, and the flowers will follow next year; a good mulching of decayed manure after planting is very desirable for these, as well as for shade trees in general; and in our dry summer climate plentiful irrigation is requisite, not so very often, but, when done, with a good soaking. Many of the above things may be planted even this season, provided they are turned out of tubs or pots with the earth they were in, and kept well and judiciously watered, and properly manured and cultivated afterwards.

It seems to be natural to some persons, and forms the greater portion of their happiness and enjoyment, to take delight in either possessing themselves, or beholding the beauties of nature in the animal or vegetable kingdom—fortunate temperament that it is, this loving what consists in the purest and most innocent of pleasures, seeking them in a right direction, and not at the expensive outlay and cost so common with the grosser and often more injurious pursuits of life.

GOV. STANFORD'S CONSERVATORY.

In addition to the attraction of a visit to view the splendid mansion and beautiful garden of the Governor, in this city, on California Street, there is a very handsome conservatory (with all the most modern improvements that can be used in this class of buildings), to gratify the eye. This most elegant and costly structure is formed partly of

wood and partly of iron. The ornaments are very rich and graceful, consisting of most elaborate and varied carved work of fruits, flowers, and other decorations. The building consists of a main centre, with a wing on either side. The propagating house is in the basement, as also the furnace. It can be heated by four different modes, so as to always regulate the heat as desired. The central portion of the house is, of course, the loftiest for the large plants, and the wings are lower to suit smaller ones, such things requiring to be placed as near to the light as possible. A portion of the glass is of the now favorite mazarine blue color, which, if it should produce no salutary effects on the plants themselves, at any rate adds very much to the beauty of the general effects of the light and tinting.

Mr. James Murphy, the intelligent and experienced gardener and superintendent, is now collecting the plants to fill this most handsome and highly finished greenhouse. He has already secured two of the finest and most perfect specimens of the Tree-fern to be found in the State. These are planted in the centre oblong bed of the middle apartment, with a Banana between them, and Orange trees on either side, the choicest decorative plants surrounding them, with a brilliant and strikingly attractive border of Coleus or variegated-leaved plants. When all these apartments are filled with the best and most choice specimens of shrubs and flowers, the *tout ensemble* will be truly magnificent in its effect. We noticed among the plants already procured *Hibiscus sinensis rosa lustea* (double yellow), *H. sinensis roseus* (rose-colored), and *H. sinensis rubra-plena* (double red), *Agapanthus umbellata variegata* (African Bride Lily), *Croton rubrum* and *angustifolium*, *Lycopodium den-*

sum (a New Zealand species), *Arundo donax* (Apetal.), *Thymus aureus*, or Golden Thyme (a lovely border plant), two English kinds of Ivy, blotched with green and yellow, a flowering Fern from Ireland, and now in bloom, *Allamanda Hendersonii*, several curious, (such as *Oncidium bicallosum* and *O. corynephorum*, etc.), splendid Orchids, which are to be suspended along the sides of the interior of the house with many hanging baskets. One wing of the house is to be devoted to Ferns and Begonias. Many climbers of the most rare and beautiful sorts will festoon the top of the centre compartment, where the brilliant and graceful Passifloras, such as *P. incarnata*, the common blue, *P. cœrulea*, *P. Billottii*, *P. Andersonii*, etc., will have ample space to display their charms. There are no plants that the world can afford nor money purchase, that will be wanting in this charming conservatory to add grace and beauty to the delightful scene that this fine receptacle for botanic gems already presents to the lovers of nature and art.

THE SHADDOCK.

We observed in the window of Mayers & Stott, No. 205 Montgomery Street, a very fine, beautiful, and large Shaddock, raised at Los Angeles by Doctor Howard. This specimen weighs three pounds, and is 20 by 22 inches in circumference. The skin, different from the "Pumalo" variety, is very smooth. Its color is a light yellow, and delicate in complexion. It proves how favorable Southern California is to the Orange family, and to many other semi-tropical and some tropical fruits. The Shaddock is a tropical fruit, and is like a gigantic Orange, with a very little of that fruit's flavor, and a good deal of

stringent bitter, especially when any portion of the skin, or parts of the division which separate the fleshy pulp, are eaten. Therefore, for a hand fruit it is not of much value, but for preserves it, no doubt, is good. We are, however, told that when it has fully ripened on the tree, its juices are saccharine and subacid, and those which are heavy and soft are usually found to be the best.

ORCHARDS.

Orchards should be kept clean of all weeds (this, indeed, applies to all gardens, lands, etc.), and the surface soil should be kept light by thorough cultivation. Weeds and other growing plants abstract a good deal of moisture from the soil, besides depriving orchard trees (and all plants) of a portion of their sustenance, and in dry seasons, especially, should not be allowed to grow in orchards and gardens. By keeping surface soil light and loose two or three inches in depth, it will prevent the action of the sun and winds from drying out the soil filled with roots beneath. The dry coating of soil on the surface, kept loose with cultivator and harrow, will make the best kind of mulching for an orchard. Orchardists should remember that it is a very important thing to keep what moisture there is already stored in the soil for the use of the trees, and that there is no better or surer way of doing this than keeping the surface loose and free from all vegetation. This is especially so in a dry season like the present one, and should be doubly impressed upon the mind of every one owning trees.—*Cal. Agriculturist.*

THE Oregon Currant is one of our best early flowering shrubs, and as they train well in beautiful little trees, one

should find a place in every garden. The fruit is insipid. They transplant easily, but not so the Oregon Grape, another shrub of great merit, being early and evergreen, but transplants with difficulty.

FRUIT CULTIVATION AND REPORT OF FRUIT AND VEGETABLE MARKET.

Cultivators of the Pear, who may desire to make a selection of different kinds of that delicious fruit to come in regular succession in the months that their trees produce it, will find that in our State the Doyenne d'Ete comes in May and June, the Rostiezer, Madeleine, and Kingessing in July and August, the Bartlett in August, the Belle Lucrative, Seckel, Flemish Beauty in August and September, the Duchess d'Angouleme in September, the Superfine, Beurre Diel and Anjou in September and October, the Lawrence in October, and the Winter Nelis, Glout Morceau, and Easter Beurre in October and November. There will be, of course, some variation in these times in different localities, and under the influence of various soils, and in some instances the periods given may be slightly reversed with those Pears which ripen nearly together. The winter varieties will vary much with the degree of maturity they have attained on the tree, and the degrees of coolness in the temperature of the places or apartments in which they are kept; but as a general approximation to the periods of maturity, and more especially to the order of succession, the list will be likely to be more useful. This time of ripening of fruit in California agrees quite closely with that in most of the Southern States of the Union, their temperature in spring, summer, and fall varying but little from California in those seasons, al-

though the winter winds in the Southern States are often very much colder.

The Strawberry trade of this city is becoming of considerable and growing importance. The *Morning Call* says of it: "The first Strawberries of the season were received on the 22d of February, fully a month earlier than usual. Since that date the arrivals have steadily increased, and now aggregate from 250 to 275 80-pound chests daily, with a prospect of soon reaching 500 chests per day. The crop promises to be large and prices low. The bulk of the supply comes forward in April and May, though a few are received every month in the year. There is probably no other market in the United States, if in the world, that affords fresh Strawberries, grown without protection, continuously from January to December. The credit of making the last shipments of the crop of 1876, and the first of that of 1877, belongs to two lady cultivators, whose fields are near Alviso, Santa Clara County. Mrs. V. Gianinni and Mrs. M. M. Shields sent in the last consignments of the old crop on the 6th of January. The latter sent the first shipment of the new crop on the 22d of February, the former following with the next shipment on the 27th of the same month. Almost the entire supply for this market is produced in Santa Clara Valley, which is peculiarly adapted to the culture from its fertile soil, but more especially on account of the numerous artesian wells, which afford unequaled facilities for irrigation. The berries are nearly all brought to the city by the steamer Relief, which makes daily trips from Alviso. The fruit picked during the day is placed on board at night, and is delivered at Washington Street wharf by four o'clock in the morning. The marketmen and hucksters are on hand, and the bulk of

each day's shipment is disposed of by seven o'clock. This trade is an important branch of the fruit business of this city, and a source of great profit to the farmers of Santa Clara County."

We see that our friend, Dr. E. Ware Sylvester, of Lyons, New York, a leading fruit grower, has been lecturing to the Farmers' Club on Apples, and how to cook and eat them. We quote as follows:

"Apples in the raw state are usually eaten between meals, just when one feels like it, especially if he has one to eat. This is not in accordance with the laws of digestion. From two to six hours are required to digest the various articles of food, and if the Apples are eaten between the breakfast and dinner, neither one will digest or afford the proper nutrition to the system. By all means let the fruit form part of the usual meal. When Apples are cooked they are without doubt still more valuable as an article of diet, and may form an important part of each meal. A well baked sweet Apple is a luxury, and a Spitzenburg or a Tompkins County King, cored, sugared, and baked is luxurious; any Apple of fair quality cooked in this manner is very wholesome, toothsome, and easily digested. Take a sound Apple and wipe it dry, and with a pair of scissors cut off the stem so that the Apple will rest firmly on its base, then, with the tin corer, commence at the blossom end, and remove the entire core, being careful not to cut through the Apple; fill the hole with sugar (granulated is the best), and place it in a pan with a little water and bake. Four or five minutes' time only will be required to fill a large baking dish with Apples, as you do not have to pare them, and the tin corers can be had at any good hardware store at a cost of seven to fifteen cents each.

Try this method once and I think you will never abandon it. A dessert made by slicing Apples fine and mixing with bread crumbs and sugar, and baked, which is then "frosted" with grape or currant jelly, is quite a favorite in our family. There are a thousand recipes for cooking Apples which I need not repeat, and to show you that the world moves, only last week I read on the "bill of fare" at a Broadway hotel, 'Salt pork and Apples fried.'"

About the middle of last month (April) there were several variations in vegetables from the figures of the week previous. String Beans were arriving daily and prices were rapidly declining. Asparagus was a little less plentiful and a shade dearer. Cucumbers were cheaper. Potatoes by the sack, delivered, were steady at \$1 to \$1.25 per 100 lbs. New Potatoes, 4c. to 6c.; Sugar Peas, 8c. per lb.

The first Cherries came to hand on the 12th of April. The variety was Early Purple Guigne, and the shipment was from the orchard of J. G. Briggs, at Marysville. Strawberries were very abundant and cheaper. Choice Apples were scarce, and sold by the single box at \$2.25 to \$3.50.

About the 20th of last month (April) the height of the Strawberry season was reached, the arrivals aggregating from 600 to 750 chests daily. The fruit crop this season will be abundant in quantity, and excellent in quality. From all sections the accounts are most encouraging. The Santa Clara Valley has a vast abundance of Strawberries, Cherries, and Pears. Napa and Yuba will produce large quantities of Apricots and Peaches. The Apple crop will be good throughout the State, and the Grape crop heavy. We shall have a superabundance of fruits to ship East. Strawberries about the middle of April

were improved in quality, being much larger, riper, and of a deep crimson color. For the first six weeks they were small, only half ripe, and many of them greenish in color. About the 20th of April Cherries were received every day in small lots, and found ready sale at 60c. to \$1 per pound. Apples were plentiful for the season, the arrivals from Oregon being liberal by each steamer.

During the third week in April Summer Squash and Windsor Beans were added to the list of vegetables. String Beans and Cucumbers were more plentiful and cheaper. Of the latter, the first consignments of the field crop came forward from Marysville. This put an end to fancy prices for the hot-bed products. New Potatoes were coming in from several localities, and the retail prices were reduced to 4c. to 6c. per pound.

Spring vegetables showed a further decline, except in the case of Asparagus. Mushrooms were almost out of market, but additions were made to the list in the shape of String Beans and Summer Squash, which were coming in freely, and sold at moderate prices for the season. Apples and Pears were scarcer.

About the end of last month (April), Strawberries were remarkably plentiful, the daily arrivals averaging 550 80-lb. chests. The demand was in proportion to their cheapness, and all the best, ripest, and largest were disposed of at fair prices. We saw some rather small, and inferior in quality, sell at 25 cents for four pounds. A few Cherries came in every day, but the choicest sold for fancy prices. Although Los Angeles Oranges were at their best, the demand for them was slack on account of the great abundance of Strawberries. Very nearly all the Strawberries were

of the Longworth Prolific kind, which seems the most suited to our climate, and bears irrigation and carriage well. The stock of Tahiti Oranges was large, but in quality they are inferior to our California product, and consequently they moved off slowly. A further reduction was noted in several varieties of vegetables, incident to increased arrivals. Old Potatoes were dearer, and the best commanded \$1.50 to \$1.75 per 100 lbs. by the single sack. New Potatoes were more plentiful, and receded to 4c. to 5c. per lb.

Editorial Gleanings.

MEGACARPEA POLYANDRA.—A correspondent informs us that the rare and botanically interesting plant, *Megacarpa Polyandra* (*De Candolle*), is again flowering at Glasnevin. The plant, which is blooming, was raised from seeds saved at Glasnevin six years ago, and this is the first year during which one of these seedlings has flowered. It, therefore, takes a longer time to come to maturity than most Crucifers do. In general appearance this *Megacarpa* bears a greater resemblance to Umbellifers than it does to Crucifers, and is a good deal like the Parsnip (*Pastinaca sativa*). The flowers are produced in large corymbs resembling umbels, and are of a greenish yellow color. The leaves are large, broad, and pinnatifid, quite like those of many kinds of Umbellifers, and the plant is strong, and about the size of them; besides, the fruits are short, flat, and broad, more like Cremocarps than Siliquas or Siliculas. The most remarkable peculiarity is, however, in the andræcium, which is nearly allied to that of Papaveraceæ, each flower having constantly from twelve to sixteen stamens. It is a native of the higher regions of the Hima-

layan Mountains, and, to cultivate it successfully, it requires to be grown on a cool, moist border which is shaded from the midday sun, but otherwise it is quite hardy for out-door culture in this country.—*The Garden*.

POTATO - GROWING.—A writer in the *Pacific Rural*, from Sutter County, thus describes the best methods of Potato-growing: "The coming season we may not find Potatoes a drug in the market, so that it would be cheaper to buy them than to raise them; but let them be ever so cheap, we had better at least raise our early supply. There is no reason why every farmer should not, the man of the plains as well as the river. We know this from experience. The mode is as follows: Let the land be well plowed and put in good order; mark out rows, say three feet apart; drop the cuts, and cover with about three inches of dirt with plow or hoe; if the latter, put on the harrow; then cover the whole ground with straw from the old straw stack; if the straw is all burned up, then you must do the next best thing you can, and use the fresh manure from the stable. This answers as a mulching for the ground, and it will retain moisture enough to mature the crop. We have raised some of the best Potatoes we ever ate in this way. We plant the Early Rose. There need be no plowing, hoeing, nor weeding, so that the labor of putting on straw is compensated for in the saving of hoeing and weeding. It will pay to raise your early Potatoes, especially when we have to pay from two to three cents per pound for our new ones. We get our early and late Potatoes in this way, as they have kept good the winter round. Our communication is intended for those living on dry plains like the writer."

CURIOUS TREES.—Just beyond the Dar-

bonn or Calcasieu River, in the parish of Calcasieu, is a White Oak tree about two and a half feet in diameter. There are no branches for twenty-five or thirty feet up. About twelve or fifteen feet up a pine limb or top part of a pine tree, six or eight inches in diameter and twelve or sixteen feet long, runs at right angles through the centre of the tree, sticking out about the same distance on either side. It tapers a little to one end, where there are two or three knots, giving it the appearance of a tree top. The Oak, where it passes through, is grown closely around it. The Pine is rich in turpentine, and will not decay. There is no fork or hollow in the Oak, but it has the appearance as if a hole had been made and the Pine stuck through, after which the Oak closed on it by growth. The question is, how did the Pine get through the Oak, or the Oak around the Pine? In Mallet Woods there is another White Oak, of considerable size, that divides into two prongs about one and a half feet from the ground, which, after running up like a pair of bow-legs about fifteen feet, unite in one round, compact stem. The prongs are about one and a half feet in diameter, and where they unite above the tree is larger than either of them, but smaller than both together. A man can walk between the two prongs, and the tree stands on a land boundary line. Forked trees are very common, but the question here is, how did the two prongs unite so perfectly in one stem above?—*Opelousas (La.) Journal*.

NATURAL DISPERSION OF PLANTS.—Statistics relating to the distribution of the flora of Europe reach a curious conclusion, and which will apply without doubt to other countries. It is, that those plants having seeds or fruit with special appendages to aid in their dis-

persion are generally less widely scattered than those destitute of such help. The single exception is in the cases of seeds provided with a tuft of hair—technically termed coma—which have a very broad range. The seeds of the willows and those of the milk weeds are furnished with the coma. Dr. Gray states that these last plants, which are “the most comose-seeded of the higher orders,” have not a wide range in North America. It is also found, from a study of the European flora, that plants whose flowers bear but a single seed, are more broadly distributed than those bearing two or more seeds in each cell. Plants with albuminous seeds somewhat surpass in range the ex-albuminous—a singular fact, considering the ex-albuminous seeds have the longest known vitality, and best bear exposure to sea water. Large genera have a slightly greater dispersion than small ones, and variable species than those not especially so.

POISONOUS WATER CRESS.—Some sailors died the other day in England after eating a plant which they had mistaken for Water Cress. It appears that there is another plant, deadly poisonous, which grows in streams, and which is very apt to be mistaken for it—in fact, it occasionally finds its way into the market with the Water Cress. To distinguish the true Cress from all other plants, remember that the smallest leaves are always at the base of the stem, and the largest at the tip. The poisonous plant reverses this order; like the leaves on the rose tree, for instance, they diminish in size toward the tip of the stem.

EARLY LETTUCE.—One secret of getting Lettuce forward early consists in sowing or planting in a very light and

rich, but not a rankly manured soil, and in a warm situation. A strip of good soil along the front wall of a hot-house is an excellent place to sow if there is a sufficient depth of soil. The heat from the wall makes a sensible difference in the temperature of the ground for several feet outward. The seed should be sown in drills six inches apart, and the young plants should be thinned out as soon as they can be laid hold of—first to one or two inches asunder, and the last three to six inches. This is not allowing much room, but it is enough to produce nice little compact heads. When the plants are growing they should never be allowed to get dry at the root, but kept constantly moist, to encourage a quick succulent growth and early heating.

TEMPERATURE FOR WATER PLANTS.—We have always favored giving warm water (or at least of the temperature of the air), to house plants, for the reason that it warmed the soil, and seemed, on general principles, to promote growth. A correspondent of the *Revue Horticole* has made experiments which have convinced him to the contrary, or rather that plants thrive just as well if given cold spring water as when given warm water. Two lots of seeds were planted in different boxes, at the same time, under precisely the same circumstances, except that cold water was given to one and warm to the other. The result was that the experimenter preferred the former.

PROFITABLE GARDENING.—Three brothers, Italians, own sixty acres of land on the west side of Roberts' Island bordering on Middle River, which they have recently brought under cultivation. Last year they planted one acre to Onions, getting the seed in very early.

The Onions thrived as everything does on that incomparable soil, and in June the brothers gathered four hundred sacks of marketable Onions, worth \$1 a sack. They immediately prepared the ground and put in a crop of Potatoes which matured well and yielded one hundred sacks of that excellent vegetable. They calculated that their net profits from that acre of ground were \$265, after allowing themselves wages.

BEAUTY OF GLAZENWOOD ROSE.—The supposed-to-be new Rose, Beauty of Glazenwood, which has been so highly extolled by some of the florists of England, and lately imported and offered by one or two in this country, turns out to be the very old Rose known as Fortune's Yellow. We learn from one of our foreign exchanges that at the last meeting of the Royal Horticultural Society, the Floral Committee had before it flowering plants of the old Fortune's Yellow Rose, and of the so-called new striped variety named Beauty of Glazenwood; and after carefully examining them both, the Committee resolved that the two sorts were identical. From this we must conclude that our Yankee florists are not alone in perpetrating the oft-repeated trick of sending out an old plant under a new name. —*Rural New Yorker*.

SHIELDING FROM FROST. — Nothing more ingenious has ever been attempted than the method recently adopted by a Frenchman of saving his vineyard from the blighting effects of frost. Examining the matter from a scientific standpoint, he was not long in discovering that to protect his vines he had in some way to improvise a cloud which should completely envelope them. This was not as difficult an operation as might at the first glance be supposed,

for all he had to do was to select some substance which when ignited would give off the largest amount of smoke. He was not long in hitting on tar balls, which placed at regular intervals in the vineyard would, when set on fire, send forth a cloud of smoke which would interpose between the upper atmosphere and it. But the arrangement was yet far from complete, for frost comes as a thief in the night. A sudden drop of the mercury in the thermometer, and he is at work incrusting leaf and stem. The Frenchman was therefore constantly producing his artificial clouds on false alarms. Last he bethought him of the simple expedient of attaching a magnetic wire to a thermometer in such a way as to give warning to the gardener when the mercury got within two degrees of the freezing point. The gardener woke up his assistants, the tar balls were fired, and frost retired worsted from the encounter.—*Alla*.

COFFEE IN CALIFORNIA.—Coffee can be raised in Southern California. A successful experiment in Los Angeles County is related by the *Express*, which says: We have been shown by Mr. Sotello a very fine specimen of Coffee berry raised on the Puente Rancho by the Badillo Brothers. These gentlemen came from Guatemala about a year ago, and purchased a portion of this rancho. They planted about 1,000 Coffee trees, 500 of which have thriven. They are desirous that the cultivation of Coffee shall become a feature in Southern California, and in furtherance of this desire they will distribute free to those who will plant them a limited quantity of the seeds of this article.

ANOTHER COLORED GLASS THEORY.—A French horticulturist forces the growth of Asparagus by placing an ordinary

wine bottle, well corked, with the bottom cut off, over the Asparagus head just as it makes its appearance above the ground. The Asparagus thus protected grows rapidly, and, since the air has no access to it, the development of the woody fibre is kept back, and the plant becomes so tender that the whole of it may be eaten, while the lessened amount of light that passes through the colored glass produces in the vegetable a rosy tint, decidedly improving its appearance.—*N. Y. Express*.

The fruit crop on the islands in the Sacramento river, and in the vicinity of the Rio Vista promise to be very heavy; the yield will likely be good, and the orchards have largely increased and developed. The California Transportation Company will keep four steamers running to carry the product to the San Francisco market this summer.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING APRIL 30, 1877.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 18 Market Street.)

BAROMETER.

Mean height at 9 A. M.	30.09 in.
do 12 M.	30.10
do 3 P. M.	30.09
do 6 P. M.	30.08
Highest point on the 18th at 12 M.	30.24
Lowest point on the 25th at 9 A. M.	29.95

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	58°
do 12 M.	63°
do 3 P. M.	62°
do 6 P. M.	58°
Highest point on the 11th at 12 M.	68°
Lowest point on the 19th at 6 P. M.	54°

SELF-REGISTERING THERMOMETER.

Mean height during the night.	50°
Highest point at sunrise on the 11th.	55°
Lowest point at sunrise on the 3d.	45°

WINDS.

North and north-west on 6 days; south and south-west on 3 days; west on 19 days.

WEATHER.

Clear all day 8 days; cloudy on 4 days; variable on 18 days.

RAIN GAUGE.

	Inches.
2d	0.02
3d	0.02
8th	0.06
15th	0.07
16th	0.05
19th	0.03

Total	0.25
Previously reported	9.62

Total up to date..... 9.87



DATE PALM.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. VII.

SAN FRANCISCO, JUNE, 1877.

No. 6.

NOTES FROM A GREENHOUSE.--NO. 1.

BY CHAS. H. SHINN, AT NILES.

A greenhouse embraces all manner of possibilities. You may, according to taste, luxuriate in fruit out of due season, or revel in masses of bloom, or fairly despise color, and hide, nay, clothe yourself in leaves, fig or otherwise. Some happy possessors of a few square feet of glass are everything by turns, and nothing long; but if there is, to the rightly balanced mind, any pure delight, it is to slowly obtain those lasting things which will be better and better for a series of years, and which—well—everybody does not have. All this I thought of yesterday, as I bent over some Japanese Magnolias with a view to propagating. Inarching and layering are the methods in use, and really it will be hard to rival the patience of the Japanese. I apprehend, though, that they will too soon fall into the rush and flurry peculiar to the great Yankee nation, and importations of Japanese plants will lose that painstaking ancient air which they now possess.

To-day I have been putting in cuttings of Juniper, Cypress, Cedar, Fir,

and a large assortment of somewhat rare Japan conifers. Of course it is not certain which will grow, for evergreens vary very much in their power of rooting, and often of two allied species one will easily root, and the other quite refuses that plain duty. Yet it is best to try, always making notes for future guidance. Pieces about three inches long are to be taken and trimmed closely to a tuft at the upper end. Use ripened wood, make a clean cut at the base, and pack closely in sand. Keep moist, and possess your soul with patience.

I notice my seed boxes are fairly awake with life. Possibly the most fascinating moment to the lover of flowers, is when some little brown hidden seed has set in order her curious underground palace, and got her forces and economies fairly under way, so that she can come delightfully up through the mold, and begin to possess the upper air. Each seed has its different way, and, although you never saw the plant before, an observant eye will soon distinguish the stranger from any weed. Here are the Cinnerarias, sturdy rascals, every one. If they can have rich soil, with a dash of charcoal,

and plenty of water, they will manage to enjoy life. Those tiny *Calceolarias* close by have made no end of trouble. First, the soil had to be sifted, dampened, and gently pressed; then the almost invisible seeds were dropped on the surface, and the box covered with a pane of glass; a little spraying at times with a brush dipped in water and drawn lightly over the edge, has encouraged them in their upward course, and now there is a flourishing lot of healthy young plants. The secrets of starting seeds are very simple. Warmth and moisture are the two essentials. These must be supplied evenly, steadily, and with patience. The mechanical condition of the soil is of great importance; it should be light, mellow, and healthy. Countless thousands of seeds perish through too deep planting. The chief uses of covering are to preserve moisture, and keep the seed in darkness during the germinating process. A little soil may be sprinkled over most seeds, and then a layer of hop leaves, or fine sand as a mulch. Don't forget to pack the soil enough to hold the seeds firmly in place. A seed has no time to roll about when it is dividing cells and developing its germ.

Our Bananas came with the leaves cut back, and they have just got ready for a rush. The leaves have come out nearly a foot in the last week, and the end is not yet. Hot water poured around the bulb every night was what did it, and got the big green lump excited. Great is hot water if you have no theories, and do not try to do too much. Anything that will hasten growth needs care. Liquid manure is almost essential for some things, but if too much is used you may easily destroy the mechanical condition of the soil, and make it a cloggy, reproachful mass, which has neither the grace of

beauty nor the grace of use. *Magnolias* especially need rich treatment; they make their growth mainly at one season, and must be fed well while they are at work. The beauty of the young glossy leaves of *Magnolia grandiflora* is surprising. They have a changeable, rich, fleeting color that ought to be the agony of a painter.

Some people like to decry the so-called foliage plants, terming them unnatural, offenders against taste, interlopers. Yet if Pinks and Roses have a right to sometimes vary, the true leaf, from which the petal is derived, has quite as good reasons; and color in petal or sepal can not be called more royal than if in the leaf. It was a revelation of new beauty in nature to many thousands when the first *Coleus* appeared, and new possibilities sprang at once into being. But if you want to be amused just notice a blue *Coleus* flower trying to look at home over the gay leaves. It does look as if there was a mistake somewhere, for the flower is evidently uncomfortable. After you have had the sensation, it is advisable to keep your *Coleus* from bloom, unless you want seed.

Did any one ever try Peter Henderson's way of dry slipping? For soft-wooded plants, liable to rot on the cutting bench, it is quite admirable. Just snap the branch you wish to take half in two, and leave it hanging on the bush for a few days until the efforts of Nature to heal the wound have formed a callus. The advantages are two-fold—your slip when severed is not so liable to rot, and the mother-plant has become quite reconciled to the separation, and does not weep tears of sap over the loss. One of the pleasantest parts of a greenhouse is this same cutting bench, which ought to be covered with some four inches of sharp sand,

and shaded by a second glass, to better retain moisture. For some things it may be well to mix one-third light soil with two-thirds sand. As soon as the cuttings have struck root pot them off.

The Fuchsias did not bloom much last winter, and are beginning to overflow with their ribbed and shining buds. I wonder how many people like to say Fooksia, as authority prefers? And did ever any monstrous double with a stately name surpass in simple grace the old-fashioned single? Elm City is yet one of the best double, and Princess Alice is a very lovely single. If we could only have a single Fuchsia of good substance, with frilled and crimped edges, it might be worth a present sigh.

TREES AND PLANTS USED BY CALIFORNIA INDIANS.

Their favorite acorn is from the Oak of the *Quercus Gambelii*. They are dried and beaten to powder in small hollows which we have often noticed on the tops of rocks or boulders. The flour is soaked a few hours in a large hollow scooped in the sand, the water draining off and carrying away the bitterness, after which it is cooked into a kind of mush in baskets by means of hot stones, or baked as bread under ground. The acorn which stands second in favor is that of the Burr Oak (*Q. lobata*). The Nut Pine or Silver Pine is a great favorite with them. The nuts are to them a choice article of food. They form their specific for a burn or scald, when pounded into powder. The pitch and the mistletoe, which grows on this Pine, are very valuable in their estimation for coughs, colds, and rheumatism. They smear it on wounds and sores. In the spring, if food is scarce, they eat the buds, the inner bark, and the core of the cone.

The cone-core and bunch grass are boiled together for a hair-dye. The long twigs of the Willow are used for arrows and basket-making. The long, straight shoots of the Buckeye are used for the same purpose. For the woof in basket-making they employ the wood of the Redbud (*Cercis occidentalis*). The berries of the Manzanita are a favorite article of food, and are eaten raw, or pounded into flour in a basket, the seeds separated out, and the flour made into mush, or sacked and laid away for winter. They also make quite an agreeable article of cider from them, by soaking the flour in water several hours, and then draining it off.

The Indians are less easily poisoned by the Poison Oak than Americans; their children handle it a good deal while little. They eat the leaves, both as a preventive and as a cure for its effects; though it sometimes poisons them internally. The women use the leaves freely in cooking; they lay them over a pile of roots or a batch of acorn bread, then lay on hot stones and earth. The bright red berries of the California Holly (*Photinea arbutifolia*) are eaten with relish; also the berries of the Elder and Wild Grapes.

Soap-root is used for poisoning fish. They pound the root up fine, and mix it into pools where the fish have no means of escape, and at the same time stir up the bottom until the water becomes muddy. The fish thrust their heads out of the water stupefied, and are easily scooped up. Buckeyes are used in the same manner. Soap-root is also used to heal and cleanse old sores, being heated and laid on hot. Both Soap-root and Buckeyes are eaten in times of great scarcity; they are roasted under ground 36 hours or more to extract the poison.

For toothache, the remedy is the

root of the California Buckthorn (*Fragula Californica*). It is heated as hot as it can be borne, placed against the tooth, and tightly gripped between the teeth. Several sorts of Mints are used in a tea or decoction for colds or coughs. Ague is believed to be cured by a decoction of the little Mallow (*Eremocarpus setigerus*), which grows on black adobe land in autumn. Colic is treated with a tea made from a greenish-gray lichen (*Parmelia saxicola*), found growing on stones. For rheumatism, they take the leaves and stems of a parasite vine (*Galium*), which grows up in the middle of the chaparral bush, heat or burn them, and clap them hot on the place.

Yellow-dock is a valuable specific in their pharmacopœia. In case of acute pain of any description, the root is heated hot and pressed upon the spot. In the spring the leaf is eaten boiled, for greens, together with Clover and many other things. Bunch-grass is the subject of superstition, which need not be described. There is another thing, probably wild Parsnip, which they believe to be a deadly poison. It will produce nose-bleed, and the people who keep it in their houses will surely die.

Of grasses, they eat the seed of the wild Oat, but very sparingly; wild Clover, Alfalfa, and a kind of grass grown in wet places, are all eaten raw when young and tender, or boiled for greens.

There are two kinds of Mushrooms which they consider edible. The one is a little round ball found underground in chaparral and Pine thickets. They eat it raw with great relish, or roast it on the ashes. Another kind grows in the ordinary form, brown on the upper side, chocolate-colored and deeply ribbed beneath, and easily peel-

ed. It is eaten boiled. Under the name of Grass-nut there are a number of bulbous roots which they eat. They eat them raw on the spot, or roast or boil them.

There is the Beaver-tail Grass-nut (*Cyclobothra*), the Turkey-pea (*Sanicula tuberosa*), the purple-flowered Grass-nut (*Brodicea congesta*), the tule Grass-nut, a small bulb, growing in wet places; the climbing Grass-nut (*Brodicea volubilis*), sometimes planted by Americans for ornament; the little Soap-root (*Chlorogalum divaricatum*), the wild Garlic (*Allium*), the eight-leaved Garlic, and several others, the yellow-blossomed Grass-nut (*Calliproa lutea*), and several other grasses of this kind. There is one other Grass-nut worthy of mention, with a black bulb (*Anticlea*), which the Indians consider poison, although it probably contains no more poison than other members of the liliaceous kind.

The list of greens which they eat in the spring is quite extensive. There is the Mash-flower (*Mimulus luteus*); two species of Angelica; the California Poppy (*Escholtzia Californica*); the Rock-lettuce (*Echeveris lanceolata*), eaten raw; the wild Lettuce (*Claytonia perfoliata*), and a species of *Sanicula*, the root of which, long and slightly tuberoso, is also eaten. Of seeds they eat the following: a kind of coarse wild grass, *Promus virens*; a species of yellow-blooming, tarry-smelling weed, *Madaria*, the seeds of which are as rich as butter; the yellow blossom of Crow-foot (*Ranunculus Californicus*); a little weed which grows thick in ravines, *Blenosperma Californicum*, gathered in the same way; also a weed with little white blossoms distributed all along the stalks, which are thickly covered with minute prickles. All these seeds are generally parched a little, and then

beaten to flour, and eaten without further cooking, or made into bread or mush. There is an umbelliferous plant, the root of which the Indians esteem very highly for food, more highly than any other, it being the nearest equivalent to Potatoes. We know not if it is the true Cammas, but think it is a species of it. It grows on rocky hill-sides, blossoms in June or July, has an extremely delicate, fringe-like leaf, and a root about one inch long, and a quarter as thick, sweetish, pungent, and agreeable to the taste. They are acquainted with the Yerba Santa, but attach no particular attention to it.

Around old camps and corrals there is found a wild Tobacco (*Nicotiana plumbiginifolia*), which they smoke with much satisfaction. They gather the leaves and dry them in the sun in a rude fashion, then cut them up fine. There are two plants for textile purposes—one is a kind of tule grass or small Bulrush (*Juncus*), which they weave into breech-cloths. For strings, cords, and nets, they use the inner bark of the lowland Milkweed (*Asclepias*). The Rock Milkweed has a medicinal value; they use the root for the toothache the same way the Buckthorn is used.

They have many other medicinal roots for different diseases—some for diarrhoea, and coughs and colds, and others for dropsy, etc.

The Indians' knowledge of the operations of medicine is at least as respectable as that of the Chinese.

UNHEALTHY PLANTS—THE REMEDY.

Mr. Peter Henderson, a great authority on all floricultural subjects, gives the following suggestions on this topic in the *Agriculturist*:

Whenever plants begin to drop their leaves, it is certain that their health has

been injured, either by over-potting, over-watering, over-heating, by too much cold, or by applying such stimulants as guano, or by some other means having destroyed the fine rootlets by which the plant feeds, and induced disease that may lead to death. The case is not usually important enough to call in a "plant doctor," so the amateur begins to treat the patient, and the practice is in all probability not unlike that of many of our household physicians who apply a remedy that increases the disease. Having already destroyed the, so to speak, nutritive organs of the plant, the stomach is gorged with food by applying water, or with medicine, by applying guano or some patent "plant food." Now, the remedy is nearly akin to what is a good one when the animal digestion is deranged—give it no more food until it reacts. We must, then, if the roots of the plant have been injured from any of the above-named causes, let the soil in which it is potted become nearly dry; then remove the plant from the pot, take the ball of soil in which the roots have been enveloped, and crush it between the hands just enough to allow all the sour outer crust of the ball of earth to be shaken off; then repot in rather dry soil (composed of any fresh soil mixed with equal bulk of leaf-mold or street-sweepings), using a new flower-pot, or having thoroughly washed the old one, so that the moisture can freely evaporate through the pores. Be careful not to over-feed the sick plant. Let the pot be only large enough to admit of not more than an inch of soil between the pot and ball of roots. After repotting, give it water enough to settle the soil, and do not apply any more until the plant has begun to grow, unless, indeed, the atmosphere is so dry that the moisture has entirely evaporated.

orated from the soil, then, of course, water must be given, or the patient may die from the opposite cause—starvation. The danger to be avoided is in all probability that which brought on the sickness, namely: saturation of the soil by too much water. Other causes may induce sickness to plants, such as an escape of gas in the apartment, or smoke from a flue in the greenhouse; but in all cases, when the leaves fall from a plant, withhold water, and if there is reason to believe that the soil has been poisoned by gas, or soddened with moisture, shake it from the roots as before advised, and repot in a fresh flower-pot. Many years ago, when I used smoke-flues in my greenhouses, some kindling wood, carelessly thrown on the top of one of them, ignited, and the smoke caused the leaves of every plant to drop. There were some 3,000 plants, mostly Tea Roses, in the greenhouse; it would have been too much of a job to repot all, but by withholding water for some ten days, until they started a new growth again, very few plants were injured.

GLADIOLUS AND DAHLIAS.

BY EUGENE A. UPTON.

Well, Mr. Editor, I must confess that I really *love* flowers; and this love has, from boyhood, grown with my growth into manhood's years, until now it has become almost a passion. Were I possessed of ample means, I expect I should have a model garden (for an amateur), but, under existing circumstances, I am obliged to content myself with only a few selections from Flora's large and beautiful family, and to the care and cultivation of these I devote what spare moments I can catch from business routine; and aside from the family circle I know of nothing in this world

that so much conduces to make life's hours pass so agreeably, cheerfully, and happily as the cultivation of flowers.

There is a solid satisfaction in seeing plants thrive *under your own care*; and in what glowing, graceful, and beautiful language do they express to you their gratitude for your care and attention. The spare moments thus spent tend to make one better, happier, and purer, both here and hereafter, and how much of the trouble, care, perplexity, and the rough edges of life generally, do we forget in such a use of leisure moments.

In selecting plants for cultivation, the tastes of amateurs are as varied as the great family of Flora itself. A lady once said to me that she could not love a flower that had no fragrance; think of the gems she would have to cast aside! The magnificent Camellia, the splendid Gladiolus, the beautiful Dahlia, etc.

After the Rose, I think the Gladiolus the most beautiful of the entire floral family; certainly no one can look upon a good collection of Gladiolus in full bloom—even the most indifferent—without being strongly moved at the sight. The colors comprise the most brilliant orange, scarlet, and vermilion tints upon yellow and orange grounds, including a graduated scale of intermediate shades—from white with rosy-blush and salmon-rose tints to salmon-red and nankeen; from blush-white with purple-crimson throat and marginal streaks of pink to light rosy-salmon grounds, with flakes of deep carmine. Thus, from white up to rose, and from rose to the brightest and deepest crimson, and from crimson to the brightest orange-flame and scarlet, they form a combination of the richest conceivable colors which no other genus can offer.

For those of my fellow-amateurs who may feel interested, I will mention a few varieties in my little collection, that I consider among the best, although some of them I have had for several years, and they will ever find a place in my garden: Mozart, Belle Gabrielle, Reine Victoria, Rossini, Thalia, Shakspeare, Le Poussin, Semiramis, Norma, La Fiancee, Lord Byron, Isabella, Princess Maria de Cambridge, Eugene Scribe, Duc de Malakoff, Eten-dard, Jupiter, Meyerbeer, Imperatrice, Madame Vilmorin, etc.

Next to the Gladiolus, in brilliancy of colors, is the Dahlia. It can safely be asserted that perfection has been attained with this splendid flower; its form is superb, its colors intense and beautiful, and if properly cultivated, richly rewards one for the care and attention bestowed upon it.

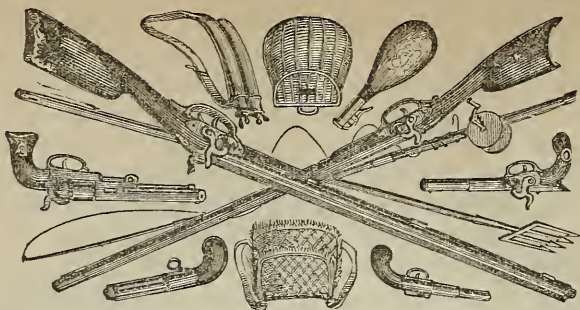
I have frequently noticed the Dahlia growing in gardens without stakes, a most unshapely, unsightly bush, with many trunks and shoots sprawling in every direction. From experience I have ascertained that if the Dahlia is allowed to have but one main trunk, trimmed of all shoots and branches for about two feet from the ground, fastened to neat stakes, it presents a much prettier shaped tree, and produces more numerous, larger, and finer-formed flowers; the pompon varieties, of course, require much less trimming. I will mention a few favorites in my collection: Miss Henshaw, one of the best whites, fine form; Yellow Triumph, Earl of Shaftsbury, Queen of Beauties, High Sheriff, nearly black, fine form; Her Majesty, Mrs. Saunders, Andrew Dodds, Alexander Crammond, Bob Ridley, Flambeau, Volcain, Laura Haslam, Hamlet, Maria Gerring, etc.

The Dahlia is a great favorite in Eu-

rope, and is one of the leading flowers in all their exhibitions, and frequently has had awarded to it valuable prizes. New and beautiful varieties are continually coming to the front, tempting some, who have not sufficient patience to wait a little longer, to pay exorbitant prices for them.

THE PINE APPLE.

The Pine Apple has been cultivated in California, but without high success, and it does not give any promise of ever becoming prominent in our horticulture. It is very sensitive to frost, and we are not aware that there is a point in the State where the thermometer does not occasionally fall to the freezing point. The mercury rarely reaches 32° Fahrenheit along the ocean shore near the middle of the State, and as the water of the Pacific at the Golden Gate is never colder than 48°, and it communicates its temperature to the breeze blowing over it—the direction while it blows is always landward—freezing cold is not possible on land near the water's edge except in time of calm; but a few miles from the shore frosts are not uncommon. The usual chilliness of the immediate shore is, however, worse for sub-tropical plants than the occasional frosts farther inward, where the summer days are much warmer. The Pine Apple is cultivated by planting slips from the root, and these bear in a year; a slip from the stalk bears in a year and a half; a slip from the crown in two or three years; and a plant grown from the seed will bear in twelve years. It is possible that seedlings that would be uninjured by light frosts might be obtained by cultivation here. The Pine Apple is grown with moderate success in parts of Florida.—*Alta*.



Red and Gun.

DIFFERENT KINDS OF SALMON ON OUR COAST.

The genus *Salmonidæ* are more numerous on our northwestern coast, than in any other part of the world. They extend from California to Alaska. From the first to the middle of April all the rivers swarm with them on their way to the spawning grounds. They move on in countless myriads. They crowd so thickly that they often destroy one another.

It is estimated by some persons that there are some fourteen species of the *Salmonidæ* natives of this coast, including those not migratory. Other people doubt if there are quite so many. After spawning they generally alter in appearance. They change much in their dental formation. If this is actually so, it would do away with one species known as the *Salmo scouleri*, or hook-nosed. The finest specimen of the family, and the first to arrive in April, is the so-called spring silver salmon—the *Salmo quinnat* of Richardson, and the tyee or chief salmon of the Chinook Indians. This is the Oregon canned salmon. It has a delicious flavor. It pours into the rivers for three or four months. The largest head the crowd. They hurl themselves into the air in thousands over the waterfalls. They then fall back on the water with a great

thud, and keep renewing their efforts continually. They hug the shore when they reach a locality fit for spawning. The female then leaves the throng, and moving to the spot selected for the nest, points her head toward the current, and by using the tail gently, retains her position long enough to deposit her ova. This done, she darts away suddenly, and her male companion assumes her place, and when he has dropped the impregnating milt, he also shoots away abruptly to join his spouse. Numbers never reach the sea again from sheer exhaustion and weakness. The Indians live upon millions of them as almost their only food.

We need hardly speak of the McCloud River breeding establishment. It is well known that millions of fish eggs are hatched here and sent abroad to supply streams everywhere. There the only sort used is the above-named *salmo quinnat*, as it stands at the head of its family for size, delicacy of flavor, and hardness. It was thought for some time, and was so reported by an envoy from England, that this fish would not take the fly, but this is a mistake, for it will take a fly, but not near so readily as its British congener, the *salmo salar*, it being more moody in character and erratic in taste. It will not bite except under certain circumstances. Some have been taken in the Columbia in this way in April, and

we have ourselves witnessed several instances of this kind at the mouth of the Butano and Pescadero creeks, near the town of Pescadero. But the large fish are very wary of the appearance of the line, unless in a heavy fog. Some think that they will not take any bait when going to the spawning grounds, but this is undoubtedly an error. They will take a spoon-bait, and also their own roe, though it is true that they do not often bother themselves with the fly allurements. They are splendid fellows when fresh from salt water.

The next species of Salmonidæ to follow its nobler brother is the *S. paucideus*, known as the weak-toothed salmon and the "blue back." The Indians call it quanich, or second running salmon, and use it much for food when it arrives in May. It is not much used at the canning fisheries, being inferior to the quinnat. It takes its name from its feeble and scattered teeth. It ranges from three to six pounds. Its dorsal profile is straight, and the tail forked and unspotted. The colors are, body and back of head a bluish-gray, belly white. This also objects generally to a fly, and does not readily bite at anything. But the one that does bite at almost anything is the *S. truncatus*, or square-tailed salmon, which arrives in August in the Columbia, and is trolled for by the Indians with a clam or herring bait. Its average weight is about ten pounds. The head is small, the teeth are quite short, and the tail is square. It is found in the rivers as late as December. The silvery-white salmon of Lewis and Clarke rivers (*S. tsuppitch*) arrives in September, and remains several months. It is good for the table; small head, pointed snout, tail forked, teeth short. The *S. scouleri*, or hook-nose, frequents the streams from September to January,

but it is almost unfit to eat. Another kind, called by the Indians *queachts* (*S. gairdneri*?) comes in June; large size, good for table. It ranges from five to fifteen pounds, round muzzle, short thick head. Another species is the *S. confluentus*, weighing from eight to thirty pounds, and comes about the first of June. Whether it is a distinct sort seems doubtful. Then there is the "hump-backed" salmon (*S. proteus*). It is a biennial visitor in September. Its flesh is not good. The hump belongs solely to the male. It has large, ugly jaws, the upper envelops the under, teeth massive, close, and sharp. A species called the dog salmon (*S. canis*), arrives in September, and is uneatable. Then there is a sort of the salmon family that bites at a baited hook pretty freely, and is the so-called river salmon or mountain trout (*S. Gibbsii*) in nearly all the streams, especially in the Cascade Range. It is very game, and requires expert handling. It weighs from three to eight pounds; small head, rounded snout, few teeth, back of head olive-green, and dotted with black spots. There are various species of salmon trout on our northern coast. The best kind is the red-spotted salmon trout (*S. spectabilis*), very game, and of delicious flavor; sides spotted with a light red, and the ventral region of a silvery hue. It comes in May, and is abundant up to the first of September. The *S. Masonii*, with a brownish-gray back, sides silvery-gray, upper sides sprinkled with irregular darkish spots, is very common, and affords excellent fly-fishing from June to November.

The Oregon brook trout (*Fario stellatus*), takes the fly readily, also worms, etc. It is not migratory, and is found at all seasons, but is in best condition in the summer months; weight from

one-fourth of a pound to two pounds; very plucky, and ranks high from an epicurean standpoint; fine color, back bright olive, belly white, and the body profusely covered with black spots having a pale centre; fins a beautiful reddish tint. Another is a red trout, found only in Wallowa Lake, Oregon, and Payette Lake, in Idaho. It bites freely at almost anything. Some call it a species of carp.

The last of the Salmonidæ is the eulachon (*Thuleichthys pacificus*), which is found from California to Alaska. This fish is so oily, that when merely dried, the Indians use it for candles. It burns very readily, and makes a lasting light on the water for spearing fish. This fish is only eaten by the Indians, and is very greasy; it is very abundant.

This completes the list of the Salmonidæ of the northern Pacific, and it will be seen that they are varied and numerous enough to furnish the angler abundance of excitement, and capital a sure means of investment.

FLIES FOR FISHING IN THE DIFFERENT MONTHS.

Fish may be said to be rather near-sighted, or the pretended imitations of flies and baits would not be so successful as they are in beguiling them to take the hook. They evidently do not perceive with great distinctness any minute object near to them, or they would not so eagerly take the red and white common "spoon" revolving so rapidly, and certainly not appearing very like anything living either in or out of the water. Artificial flies, too, are equally deceptive with them, and certainly nature is not closely imitated in most of them. As an instance, the red ibis, which is often an attractive lure for trout in some waters, does not imitate any winged insect to be seen

anywhere. It is now mostly considered that fancy flies dissimilar to nothing in existence, are at least as taking as those accurately copied from nature. It is, at any rate, a remarkable fact that, for the most part, the same flies are the most killing in all waters the world over; nor is there any fly found more excellent for general use, or one which possesses more ardent votaries than the red hackle, which has probably killed more and larger fish than any that can be named.

In America, trout-flies are used of much larger size, and that more effectively than in Scotland, Ireland, Norway, etc., and the small English fly is justly less estimated in most of the western waters and on this coast, although the very small trout which we sometimes fish for in many of our creeks require quite small flies. The colors of the American flies are likewise much brighter on the whole than is approached by British anglers, and fish not unfrequently here take a gaudy scarlet ibis feather with a gold tinsel body, as we have before observed, which a person who should use it in Europe would not unlikely be thought out of his right mind.

The flies which we hold the best are the red hackle, the ginger hackle, the black hackle, occasionally varied with bodies of gold or silver tinsel, the March-brown or dun-drake, the pale yellow dun and the blue dun—both very killing flies—the cow-dung fly, the stone fly, alder fly, the green and gray drakes, and for night and twilight fishing, any of the gray, cream-colored, or mealy moths; of these we prefer a large white-winged moth with a black body. In many waters some of the coppery-golden and green peacock herls are found to kill well. For our own fancy, however, we decidedly prefer the

hackles of almost every color and variety, from the ginger, through all the shades of cock, grouse, partridge, quail, up to jet black.

The flies used in lake-fishing are larger than those of rivers, and we have frequently observed that the winged flies answer better than the palmers. In trolling for silver salmon in Lake San Andreas with a spoon, it is a good plan to place three feet above the small sinker either a black or dun-colored fly; and when a good wind ruffles the surface of the water, fish frequently seize it and are captured.

After all, we must arrive at the opinion, that of the very many flies described and illustrated in English books, or exhibited on the fly-maker's pattern cards, a much more limited assortment is really necessary on this slope at least, and many are totally useless. Indeed, a very extensive knowledge of flies and their names here can not be of much practical advantage to us.

All flies come in earlier or later in every country every year, according to the coldness or warmth of the season, but there is probably much less difference on this coast, owing to its general mildness and congeniality of temperature, than other regions. Sometimes fish change their flies two or three times in a day, and in the same part of the river or creek.

A little time before any sort of fly goes out and dies, it comes on streams or lakes in great numbers, and then is greedily taken by the fish, who do not much change till that sort be gone. Then they take many kinds until another is of great plenty, when they forsake all for that which is most numerous, and in greatest perfection, and change not again until they have glutted themselves as before; and this is their course through the season.

The best flies for April in California, are the ash dun or fox, the prime dun, the black-wing hackle, small stone-fly, the partridge tail, the Spanish needle, and the sand-fly.

For May, the pale green, the pheasant brown, stone midge, dark midge, green-bodied moth, the pure red dun, the light dun.

For June, the golden plover, the black jack, salmon jack, the red palmer, the ash palmer. For all the season, the golden hackle, dark grouse, pheasant brown, the black hackle, the red spinner, and the clock.

With regard to salmon-flies, fresh-run salmon are most readily caught with a spoon trolling bait from a boat, or by bait-fishing with clam bait or boiled shrimp, but at those seasons when they will take the fly at all, if the colors are in any way suitable to the water, they will lay hold; as to a certain fly being *the fly* for any water, to the exclusion of all others, it is a complete delusion. Gaudy flies will rather scare salmon on this side the Atlantic. There is no need of a profuse variety of beautiful flies on this coast. The blue-and-brown, the "silver-gray," and the "Professor" are about as good flies for us as can be used. Also the Nicholson, Louise, Edwin, the Forsyth, Stevens, Ross, Parson, Strachan, and the Langevin are desirable flies.

We have found young salmon, in November, in the Butano and Pescadero creeks, near the ocean, take the fly freely when they are seen rising or playing on the surface of the water, and occasionally a very large fish will take hold, but the older fish are rather shy of the fly. In the spring the salmon in the Upper Sacramento, McCloud, Shasta (especially), and Pitt rivers, and tributaries, will probably take the fly.

A NEW SPOON FOR TROUT.

Dr. Jessop, of this city, one of our most ardent, energetic, and intelligent sportsmen, both with the gun and rod, has lately, among several other useful mechanical contrivances, invented a spoon for trout fishing with an artificial fly attached. We have seen three sizes of this clever allurement to beguile the trout either by trolling with it from a boat in lakes or large streams, or throwing it as a killing bait in creek angling. It is termed the "gyro." It has been found very successful in some of our waters in capturing a large number of trout. It presents a double attraction to its victims—the fly, which may be varied at the option of the maker, and the glittering, rapidly, easily revolving silver spoon, which, as is well known, deceives fish into attacking it as some small fish. We learn the Doctor intends taking out a patent for it. It can be seen, and perhaps purchased, at Liddle & Kaeding's, Sportsman's Emporium, Washington Street. Some consider it the best troller ever invented, and it can be made of different sizes, and large enough for heavy salmon.

MONSTER SUNFISH.—We are informed that a very large specimen of "sunfish" or molebut (called in Scammon *Orthogoriscus molo*), came on shore at Sur last week. Its measurements are as follows: from nose to tip of tail, six feet four inches; from tip to tip of fins, seven feet six inches; depth, exclusive of the fins, three feet ten inches; thickness, eighteen inches. It is an adult fish, and is supposed to weigh 1,200 pounds. It is of a different variety of sunfish from the smaller kinds usually found on this coast, and is truly a monster. Wouldn't it be a bouncer to put

in a museum? This, as a sunfish, exceeds the largest ever recorded, we believe. Large sized ones are often found in fine weather sleeping on the surface of the water, when they can be easily approached. Some kinds of sunfish are sought for the value of their oil; but this kind, the authorities say, is of no commercial value.—*Monterey Californian.*

A GOOD SUGGESTION.—The St. Louis *Republican* makes a suggestion to farmers that is worthy of consideration. It is to this effect—that the farmer who has a spring or running stream on his lands shall collect the waste water into an artificial reservoir or pond, and go into the business of propagating the finer qualities of fishes. Two or three acres might in this manner be made to yield as much profit as ten planted down in cereal grain. There would be two sources of revenue. Anglers are always willing to pay for the sport of taking the finny tribe with rod and line, and the market demand for favorite fishes is never-ceasing. Fish culture, in all its branches, has become one of the popular pursuits of the day.

THE Sacramento *Bee* of May 19th says: Early this morning R. H. Buckingham, a fisherman of this city, found a fine large shad in his gill net, a short distance below the gas works, and he took it to Jones & Anderson, the well-known fish dealers for sale, when it was found to weigh just five pounds, being by far the largest ever taken on this coast. It was purchased by Albert Galatin, who presented it to Mark Hopkins, as a fine sample of the benefits resulting from the well directed labors of the State Fish Commission.

Selected Articles.

FRUIT TIME.

BY MAY N. HAWLEY.

A blue jay swings in the apple tree,

Eyeing its ripe galore ;

Stained with crimson and flecked with gold,

Rich to the eye as the apples of old

Which grew on the Dead Sea shore.

The grape leaves toss in the warm sweet wind,

Half hiding the dusky glow

Of purple globes that melt in the light

To amber gleams or amethyst bright,

As the fruit days come and go.

Down in the woodland wild currants fall

Duskily blue and sweet;

Plums, like blood-drops, hang heavy and low;

Thorny red gooseberries daringly grow

Tempting and close at one's feet.

Berries grow on the Spanish madrone

Like scarlet flecks of flame,

Against the green of its broad dark leaves,

Which quiver and toss as the waves of seas,

When the wind blows o'er the main.

Deep in the woods the yew trees stand

Straight as an archer's mark,

Hiding their treasures from eager prey,

Wine-red yewberries clear as the day,

When the sun slips out of the dark.

THE REDWOOD.

This tree which forms so large a part of the great forests of Sonoma County, possesses many remarkable peculiarities. It belongs exclusively to the foggy regions of the Coast, and grows only on underlying metamorphic sandstone. The great Redwood forest of California extends from the northern boundary of the State to Russian River, increasing in width to the northward. Upon a congenial soil the Redwood will take root easily and grow with great rapidity, while it can not be made to grow upon other than a sandstone formation. A few days ago Mr. Meeker informed us that a gentleman at Tomales had

after repeated trials failed to make the tree grow, while on Russian River, not more than twelve miles north, is a noble forest in which the largest trees attain a height of 400 feet, and a circumference of from forty-five to fifty feet. The openings so noticeable in Redwood forests, generally covering a few acres, can be ascribed to no cause other than a change in the formation, as they are enclosed by Redwood trees, and have, of course, the same fog and climatic influences as the surrounding forests. The wood varies in color and density, the heaviest is a dark red color. The lightest in weight is the lightest in color. The average weight of Redwood lumber is $4\frac{1}{2}$ pounds to the foot. Remarkable differences in the weight of the wood sometimes occur. In one instance which came under our observation the lumber sawed from trees in one gulch weighed but $2\frac{1}{2}$ pounds to the foot, while that from a gulch running parallel with the first but a quarter of a mile distant, leading to the same main canyon, weighed six pounds to the foot. The trees growing on a gravelly soil are generally unsound on the top and in the heart, rotting from the top downward. When the tree stands on ground where the underlying rock is of a shelly or broken nature the timber is apt to be unsound. Upon precisely the same kind of soil when the underlying strata is solid the wood will be solid. The best and largest timber is of course along alluvial river bottoms, which rest upon a solid sandstone formation; though a good deal of hillside timber when the rock is solid will make the best of lumber. The wood splits true; it is close in texture, soft, light, and durable. It does not rot either above or below the ground, nor will it warp. Thin slats of Redwood from twelve to fifteen feet long worked into fences

twenty-five years ago, can be seen in this valley as straight and sound as when they were first split. The Redwood is first in commercial value of all the trees of California, and is not surpassed for the purpose for which it is used by any tree known in the Flora of the world. Within sixteen miles of Santa Rosa there are vast forests of Redwood, which will supply our local demand for years to come, with a large surplus for export.—*Sonoma Democrat*.

THE JUICE OF CALIFORNIA GRAPES AS ADAPTED TO WINE-MAKING.

[A paper read before the California Academy of Sciences
by James Blake, M. D.]

Having, while in El Dorado County, tasted some wine which was evidently superior to anything I had before tasted, as the production of our State, I inquired of the maker the variety of grape from which it was made, and found that it had been made principally from a grape known in this country as the Zinfandel. Since my return, I have made an analysis of the juice of this grape, and also of some others which are now being propagated for making wine. The grapes were grown at the vineyard of the Vinicultural Society, at Sonoma, and were apparently perfectly ripe. The varieties analyzed, beside the Zinfandel, were the Reimer, a large white grape; the Riessling, also a white grape, and the California Mission Grape. The method of analysis was to take the sp. gr. of the juice—heat it to coagulate the albuminous matters, filter through a Bunsen filter, and after bringing up the juice to the original quantity, to neutralize with a standard solution of potash or ammonia, so as to ascertain the total amount of free acid. Another portion of the juice was evaporated to about one-

third, mixed with alcohol and ether to precipitate the tartrates; the ether and alcohol distilled off from the filtered juice, which was then neutralized to ascertain the amount of malic acid. The amount of sugar, as indicated by the sp. gr., was controlled by direct analysis of a portion of the juice cleared by acetate of lead by means of Fehling's copper test; and the result obtained is thus recorded:

	Sp. gr.	Sugar.	Free acid.	Malic acid.
Zinfandel.....	1072	16.6	1.73	0.60
Reissling.....	1083	18.7	1.10	0.37
Reimer.....	1067	14.0	1.30	0.80
Mission Grape.....	1088	21.5	0.60	0.11

As there can be but little doubt that the development of the ethereal substance on which the aroma of wine depends is owing to the presence of free malic acid, and more particularly, I believe, of malic acid, the above figures explain the cause of the absence of aroma from the wine made from the juice of the Mission Grape; for while the three varieties of foreign grapes analyzed contain respectively 60.57 and 80 parts of malic acid to 10,000 parts of juice, the Mission Grape contains but 11 parts. The presence of this comparatively large portion of malic acid in grape juice is a fact which has not I think received the attention it deserves. I believe the acid itself splits up into an ether and an alcohol; and this independently of its action on the alcohol already found in the wine. Wislicenus has shown that lactic acid forms an ether even when being dried at ordinary temperatures over sulphuric acid, and alcohol is one of the products of the fermentation of malic acid. There would seem to be enough potash in the grape juice to form with the tartaric acid the slightly soluble bitartrate of potash, as after this has been precipitated by alcohol and ether, and the juice then nearly neutralized with potash, no more bitartrate is thrown

down by again mixing the juice with alcohol and ether, but malate of potash separates as a thick syrupy deposit.

These figures as far as they go, give, I think, a satisfactory explanation of the superiority of the Zinfandel as a wine-producing grape, and fully bear out the conclusions I expressed some 14 years ago, in a report I drew up as one of a committee for examining the wines at the Agricultural State Fair at Sacramento, in 1860. As these remarks contain suggestions which I think will be useful to our wine-growers, I shall offer no apology for quoting them. After pointing out the great advantages as regards climate and soil found in our State for cultivating the grape, and which I believe insure its being the finest wine-producing country in the world, I remarked on the imperfect manner in which these advantages had been utilized by our wine-growers, as indicated by the quality of the wines exhibited, and pointed out what I then considered to be the cause of our want of success; observing "in view of these facts your committee believe that they are authorized to call the serious attention of our wine-growers to the necessity of an early introduction into this country of varieties of foreign grapes which appear to possess those qualities which are wanting in our own, or in other words which contain less sugar and more free acid." After mentioning some of the varieties of European wine grapes which possessed these qualities, I remarked "it is highly probable that the grape now cultivated in this State is about the worst that could be selected for making a first-class wine." The truth of this remark is now being realized by our wine-growers, who are replacing as fast as possible the Mission Grape by foreign varieties, for it is found that even where a portion of

these foreign grapes are used in the manufacturing of the wine, it commands a much higher price than that made with the Mission Grape. I believe that either of the varieties, the analysis of which I have made, is capable of making a good wine when the soil and climate to which it is most suited is properly selected, of the necessity of paying some attention to the selection of the variety best suited to the very marked varieties of our soil and climate. I quoted the following remarks of Mr. Bender, Inspector-General of Agriculture, in France, and author of a work on the vineyards of that country. After describing 144 varieties of grapes that are grown for making wine, he says: "Almost every variety of soil is found in our more celebrated vineyards, and appears able to furnish a superior wine when the variety of grape cultivated has been well selected, that is, when it is perfectly appropriate to the soil and climate. The choice of the proper variety of grape that will suit the soil and climate is after all the great secret for obtaining superior wines in a climate where the grape flourishes." That so little success has up to the present time attended the efforts of our wine-growers to produce a first-class wine is not surprising when we consider that not only have they been working with probably the worst grape for the production of such a wine, but have been endeavoring to make the same grape produce good wine in the moist alluvial soil of Los Angeles, and in the heated volcanic hills of the Sierra. [I would observe that the Zinfandel from which the wine I tasted was made, was grown near Coloma, and I believe on a soil of decomposed granite.] A long experience, however, will be required to discover the most appropriate variety of grape

suitied to our varied conditions of soil and climate. As showing the influence of soil and climate on the qualities of the grape, it is interesting to compare the analysis of the same variety of grape when grown in Germany with those grown here. In Watts' Chemical Dictionary I find an analysis of the juice of the Riessling made in Germany by Fresenius. The quantity of sugar is there given as 15 per cent., and of free acid as 53 per cent., while here the juice contains 18 per cent. of sugar and 1.10 of free acid, or three per cent. more sugar and twice as much free acid. Should the presence of the free acid influence the quality of the wine in the manner I have pointed out, it is evident that the Riessling may make a superior wine here to that made from it in Germany; that is, when grown in the localities which suit it.

DRYING FLOWERS TO RETAIN NATURAL COLORS.

G. Wermig, in *London Garden*, says: I communicated some of my experience in drying flowers in their natural colors, but omitted to mention, as very good flowers for drying in sand, Verbenas (red and blue), Zinnia, Gaillardia, Senecio, Sanvitalia, Phlox, Tagetes, etc. I now proceed to describe the process of smoking flowers with brimstone, which is a very good, simple, and cheap way of drying flowers, especially Asters, Roses, Fuchsias (single ones), Spiræas (red-flowered kinds, such as Callosa, Douglasii, etc.), Ranunculus, Delphiniums, Cytisus, etc. The Roses ought to be quite open, but of course not too fully blown. The first thing necessary is to procure a chest suitable in size to the quantity of flowers intended to be dried. I find the best size for general use is one about three or four feet

square. The size, however, makes no difference, as one will do if only two feet square. In the under part of one side of the chest there should be a small opening, to be closed by a bar, through which the basin containing brimstone must be put into the chest. This opening must be covered inside with perforated tin, in order to prevent those flowers from spoiling which hang immediately over the basin. The chest should be air-tight, and in order to render it so paper the inside thoroughly.

When the chest is ready for use, nail small laths on two opposite sides of the interior, at a distance of about six inches apart, upon which lay thin, round sticks, upon which you can arrange the flowers. Care should be taken, however, that the flowers on the sticks, as also the sticks themselves, are not too close together, or the vapor will not circulate freely through the vacant space around the flowers. The best way to hang the flowers is to tie two of them together by the ends of their stalks with a piece of mat or thread, and afterwards place them upon the sticks so as to prevent them from touching each other.

When the chest is sufficiently full of flowers, close it carefully, place a damp cloth on the sides of the lid, and some heavy stones upon the top of it, after which take some brimstone broken into small pieces, put it in a small flat basin and with a match kindle and put it through the opening in the bottom of the chest and shut the bar. It is a good plan to make an air-hole on opposite sides of the chest, which will assist the ignition of the brimstone, and which should be closed when the latter burns freely.

Leave the chest undisturbed for twenty-four hours, after which time it must be opened, and if the flowers are

sufficiently smoked they will appear white, if not they must be smoked again, when a little more brimstone may become necessary. When sufficiently smoked, take the flowers out carefully and hang them in a dry, airy place in the shade for the purpose of drying, and in a few days or even hours they will recover their natural colors, except being only a shade paler. To give them a very bright shining color, plunge them into a mixture of ten parts of cold water and one of good nitric acid, drain off the liquid, and hang them up in the same way as before. Thus preserved they will keep for years.

THE ENDURING FAMILY OF YEW.

The whole Yew family is remarkable for its substantial and enduring qualities. The lives of single specimens number hundreds of years, and they were largely used when the topiary style of gardening was in vogue. On Long Island all of them are hardy, while the Irish, or pyramidal, is the better when shielded by other shrubs from the keenness of a northwestern wind. Indeed, all of them would be the better for this slight protection. The common English Yew is too well known to need description. Its dark foliage, and capability of being clipped into fantastic forms, give it a place that can only be attained by other members of its own family. The erect Yew is the most prominent of these. It is more upright in its form, more hardy against cold, smaller and finer in its foliage, and in many ways superior to the common English Yew. The Irish Yew has nothing like it in form. The diameter of its foliage is scarcely one-fifth of its height, and its color is rich and dark. The Japan Yew has larger leaves,

stronger and more luxuriant growth, and larger diameter of foliage, in proportion to its height, than the Irish Yew, which it somewhat resembles in form. The Golden Yew is the most striking of all. When the new growth is upon it, in June, its surface is like burnished gold, to be seen from all points. I know of nothing so valuable for rich color effects, and can not easily forget the view which burst upon me when I came from behind the shrubbery upon the Italian garden of Elvas-ton Castle, where crowns, and pagodas, and birds, and arm-chairs, made of the Golden Yew, interspersed with clipped forms of the English Yew, made a charming scene, which I can not describe to you in adequate terms. The Elegant Yew is a lighter-tipped variety, somewhat resembling the Golden.

The *Cephalotaxus* is a Yew-like Chinese tree, introduced by Fortune, the Chinese explorer. It has a very light foliage, bears clipping well, and is so marked in its character that it should be in every collection. The *Cunninghamia* is a most desirable low-growing tree, because its Balm-like foliage is so unique. It is, however, very impatient of the combined sun and cold of early March, and frequently loses the ends of its branches. It should, in this latitude, be planted in the most favored situations. The *American Arbor Vitæ* is well known, and is extensively used for hedges. The *Siberian Arbor Vitæ* is, however, much superior to it, because it is more hardy, more compact, and does not require trimming. It grows less rapidly, but compensates for its slowness by its superiority when grown. While its superiority for hedges is recognized, it is not so well known that it makes a fine single specimen upon a lawn. The *Compact Arbor Vitæ* is a round-headed, dwarf variety, which is

much admired. The Hovey Arbor Vitæ is a golden-tinted variety, perfectly hardy, and superior, in many respects, to the Golden Arbor Vitæ, which has long been admired for the beauty of its color, and its adaptation to decorative purposes. The Chinese Arbor Vitæ is very attractive, but too tender for this latitude. [Not, however, for California.—ED.] Of all this family, however, the gem is the *Biota elegantissima*. Growing in upright flakes, delicate in its leaves, and sun-tinted in its shading, there is an air of refinement about it which eminently adapts it for the vase, and the window or table. The Weeping Arbor Vitæ is striking in its habit, and its leaves are thread-like and drooping.

MUSHROOM CULTURE.

A Germantown gardener writes to the *Germantown Telegraph* as follows :

Take of horse-droppings, clean of straw, as much as you think will make a bed of the desired size; turn it over every other day until the rank heat has passed off. Then to every ten bushels of the dung mix three bushels of fine loamy earth; turn the whole over and mix it well together. Then if you have a greenhouse you can make the bed in under the staging, and if convenient make it on top of the flue or hot-water pipes, as far from the furnace as possible. The bed should not be less than two feet deep, and the warmth of the flue or pipes will keep a gentle bottom heat all the time. On top of the bed put about one inch of fine soil; then thrust a stick down in the centre of the bed, and by pulling it out you can tell when the bed is cool enough to spawn. Great care must be taken not to spawn while there is too much heat, for the heat will burn the spawn.

When your bed is fit to spawn, which will be when you can hold the stick in your hand with comfort, break your spawn ("bricks") into lumps as large as a walnut, and deposit them over the bed about six inches apart. One brick will do about three square feet. Then cover it all over with two inches of fine loamy earth, and give it a gentle watering with warm water and cover with newspapers; and in from six to eight weeks you will have Mushrooms, and plenty of them if the spawn was good. If not, you can make your own spawn out of the same bed, by making holes in the bed with a round stick nearly to the bottom, and pour hot water in and let it soak away. Repeat as often as the bed gets dry, and in the course of six or eight months you will have a bed full of fine, healthy spawn, which, if taken care of, will last for years.

THE OREGON MYRTLE TREE.

Dr. F. S. Matteson, of Coos County, Oregon, sends us the following account of the Myrtle tree of that region :

The Myrtle is one of the most beautiful of trees. It grows from twenty to fifty feet high, and from six to twenty inches in diameter. Many specimens are larger. It is of very full foliage, with a leaf about three inches long by half as broad, of an ovoid-lanceolate form, not serrated, and of a deep shining green. It is an evergreen, and after the habit of its class sheds its leaves in summer. Before they fall, these old leaves turn a bright golden yellow, glistening in the sunlight and flecking the green foliage of the tree with golden spangles. The leaves are delightfully fragrant, and a ride through a grove of Myrtles reminds one of the storied "odors of Araby," or the flower-perfumed "vale of Cashmere."

The wood is hard, heavy, fine-grained, and susceptible of receiving a high polish, and when thus finished and varnished, is of a dark variegated color. It is useful for all the purposes for which walnut, mahogany, and other like woods are used, and is scarcely surpassed even by rosewood. The tree is very tenacious of life, sprouts freely from the stump after the tree is felled, is a vigorous upright grower, and may be trained or cut into almost any desired shape. It blossoms in early spring, and the finest honey in the world is gathered by bees which work in the Myrtle groves. It grows in abundance on the river bottoms of this county and one or two counties south of here, but only on the western slope of the coast mountains, and along the streams. It is being cut for lumber and for fuel, and burned in heaps to clear the land for cultivation. Many trees are left standing for ornamental purposes, for which they are unsurpassed by any evergreen known.

The fruit is also ornamental, being a round nut inclosed in a smooth green hull, which hangs pendant-like on the branches, something after the manner of Fuchsia blossoms. These nuts are somewhat bitter, and are therefore not eaten by people, but are valuable food for pigs, which in these river bottoms keep fat and fine all winter. Large numbers of young trees are to be found in the woods here, grown from nuts which have lain over winter.

This tree must certainly become a leading evergreen tree for ornamentation, as it is unsurpassed by any known tree for all the qualities which make an evergreen desirable; and I have no doubt that a very fine fragrant oil may be distilled from the leaves, useful as a perfume, and perhaps for medicinal purposes. Having no facilities at hand

for the purpose, I have not experimented in this direction, but propose doing so at no distant day.

SULPHUR THE GRAPE-VINES.

Mildew is one of the greatest enemies to good Grapes we have in the State. It makes its appearance and does the greatest damage in wet seasons, and in low, undrained soils. In dry seasons, like the present, it is true it does not seem to affect the vines much, particularly in districts well adapted to Grape culture. It generally shows itself about the time of the blossoming or the setting of the fruit, but the damage is not generally perceptible till the Grapes are of some size and the seeds begin to grow hard in them. By close observation it will first be discovered on the lower side of the leaves, giving them a grayish appearance. If not checked then it will soon appear on the berries, giving them the appearance of having been dusted with a grayish flour. Sometimes it will appear only on a few bunches on a vine, and perhaps only on a few of the Grapes in a bunch. The first effect on the leaves is to check their growth and give them a dry and crispy feeling, as though they were not supplied with a sufficiency of sap to continue their development. If the mildew is not checked the leaves affected will contract and roll up like leaves touched with frost. It checks the growth of the berries very soon after it attacks them, and prevents them coming to maturity, or even coloring.

The best remedy for mildew on Grapes is sulphur. If the vines are well sprinkled with sulphur, even after mildew has gained a considerable hold of the leaves, its progress is checked almost at once, and damage to the fruit

may thus be avoided or prevented. We have even sprinkled sulphur on the berries upon which mildew had become perceptible with good effect. Sulphur then is a curative of mildew on the Grape, but it is much more effectual as a preventive. The most successful Grape-growers make a practice of sulphuring their vines every year, whether they mildew or not. In the old Grape-growing countries of Europe it is considered almost as necessary to sulphur the vines as to prune them. But as a preventive of mildew is not the only use of sulphur on the vines. It is a manure of great value to them. Sprinkled on the leaves, it penetrates the vine and affects the sap, and stimulates the growth. It seems to have a similar effect on the vine that plaster does on the wheat land or on clover. If a row of vines through a vineyard be sulphured, the color of the leaves on that row will be darker and of a richer and more thrifty green than on the vines each side of it. The Grapes grown on this row will also be large and of a finer flavor. With all these facts in favor of sulphuring our vines, we should none of us allow our vines to go unsulphured, whether there is any danger of mildew or not. To those who have large vineyards, the production and profits of the vines will be greatly increased, while to those who have just a few vines for their own use, sulphur will add to the beauty and deliciousness of the fruit. Vines should be sulphured at least twice in the season. Once just before the blossoming, and once when the fruit is fully formed, say when the seeds are about forming.

• • •
VANILLA.
—

The word "vanilla" is frequently on the lips and the peculiar taste of it on

the tongue, but few of the thousands who indulge in the delicious ice or delusive soda know anything about the flavor that is so grateful to their palate. The liquid known as "vanilla" is extracted from a bean which grows in considerable abundance in the interior of Mexico. In its green state it is about ten inches in length, as large round as one's finger, and bears a resemblance to our string bean. When dried and prepared for the market it is about the size of a lead pencil, of a dark brown color, and with a very aromatic odor. On being cut or squeezed a black tar-like substance oozes out, which, on examination, proves to be innumerable little seeds, so small as scarcely to be distinguished by the naked eye. These beans are cultivated exclusively by the Mexican Indians, a very lawless, treacherous race; so much so, indeed, that a Boston gentleman who recently traveled through the vanilla bean region found it necessary to be accompanied by a strong body-guard.

The vanilla is indigenous to Mexico, and can not with any success be cultivated elsewhere. When gathered and dried the Indians bring them to Tuxpan, where they are shipped abroad, one Boston manufacturer alone taking as much as thirty or forty thousand dollars' worth at a time. The demand for vanilla extract has increased so much of late years, not only for creams and soda water, but for cooking purposes generally, that the price has rapidly advanced, while rose extract, long so popular, has correspondingly declined. Another cause for the rapid rise in price is the liability of the bean to mildew or otherwise to become unfit for use. Owing to the increased cost of the article spurious compounds are being thrown upon the market, prepar-

ed principally from the tonqua bean, costing the manufacturer less than one-twentieth part as much as the genuine vanilla bean. It is a nauseating substitute, never intended for the human stomach, but can be readily detected by its odor.

ORNAMENTATION OF GARDENS.

With regard to ornamentation generally, "carpenter architecture," besides being expensive, is altogether out of place in small gardens, although harmonious and agreeable in the shape of summer-houses and rustic seats, where the grounds are extensive. It is common to see a little garden, with starveling flower-beds and a few shrubs, bestridden by an elaborate, expensive edifice mis-called a summer-house, mis-called an arbor, properly called a nuisance. Another popular delusion, that empty urns and vases, painted china sets, ugly statues of mythological deities are appropriate to square plots of grass and patches of flowers. Suburban gardens are often spotted with these things, which are seldom either ornamental or useful. A rich urn or vase filled with flowers is a beautiful sight, and may sometimes be used with excellent effect, but the right place for it is often an open question.

The ornamental properties of decayed tree-stumps, and even of half barrels sunk in the ground and covered with strips of bark, are too well known to require particular mention, but a rustic wall-pocket against some grand old tree is not so common, and may be made a thing of beauty with trailing vines and bright clusters of bloom. Our motto would be vines—vines everywhere; and a curving-in gate with a light trellis-work over it, for graceful climbers, is a most ornamental addition to the entrance-grounds. For a pur-

pose like this the beautiful *Clematis Jacksonii* is scarcely so well known as it should be; and the fiery autumn blushes of the Virginia Creeper touch up with just the right line of color the *passee* charms of summer verging into fall.

But, whatever else the owner of a small garden may see fit to do, let him not, as Mr. Wegg would put it, "drop into" statuary. Staring plaster-casts, unless draped and veiled with abundant green, are positively hideous; and those who are most given to displaying them in small, unshaded spaces would probably return the Venus of Milo after ordering it, like an Oriental bride, without seeing it, in fuming indignation as a broken and mutilated "figger," instead of the perfect Greek statue expected and paid for. Mr. Lowell says that "it is only in such a climate" (that of Italy) "that it does not seem inhuman to thrust a naked statue out of doors. Not to speak of their incongruity, how dreary do those white figures look at Fountain Abbey in that shrewd Yorkshire atmosphere!" Occasionally, perhaps, in extensive grounds, a Naiad by a retired fountain, or a Flora not too elaborately gotten up, may be rather a pleasant object; but, after all, the most harmonious figures, where nature is supposed to hold sway, are those of veritable flesh and blood, even if not after the Greek models.—*From Appleton's Journal for May.*

FLOWERS FOR FOOD.

No flowers in this part of the world are considered valuable as food. We might except, perhaps, the delicate confection which the French make by sugaring the petals of fragrant violets. We have heard of these being used for a dessert, but such airy fare, alone,

would soon bring a man to starvation. In many parts of India, however, the flowers of a tree called *Bassia latifolia* form a really important article of food. These blossoms, which are succulent and very numerous, fall at night in large quantities and are gathered early in the morning and eaten raw. They have a sweet but sickly taste and smell. They are also dried and stored as a staple article of food. A single tree will afford from 200 to 400 pounds of flowers.

These trees are of so much importance to the natives, that, when an invading force threatens to cut them down the threat generally insures the submission of the tribes. The blossoms of another species—*Bassia longifolia*—are used in a similar manner in Malabar and Coromandel. These are eaten either dried and roasted, or bruised to a jelly and boiled. The last are made into small balls, which are sold or exchanged, for fish, rice, and various sorts of small grain. The seeds of all varieties of the *Bassia* are no less useful than the flowers. Oil and soap are made from some, and from others a fatty substance called butter is extracted. This is of a white color; has an agreeable taste, and keeps well. It is an important article of commerce in Sierra Leone.

AUDUBON'S LILY REDISCOVERED.

If possible, Audubon has suffered worse at the hands of the botanists. From these gentlemen the famous student of the woods and fields has received a snub of the shabby-genteel sort, and of the most persistent character. In his "Birds of the South," and with his usual love of fidelity to particulars, as indicating the plant habitat, or sur-

rounding, Audubon figured a yellow Water Lily—not that very ordinary flower, the Nuphar advena, the Spatterdock, or Yellow Pond Lily, so common from Canada to Florida, but a real close cousin to our delightful, sweet-scented Water Lily. Beholding it with his own eyes, the great painter put it into one of his glorious bird-pictures, and, having given the portrait of his floral beauty, he also named it *Nymphæa lutea*, or, in plain English, the Yellow Water Lily. But this pretty flower had never been seen by the botanists; and so, forsooth, the thing was absolutely ignored—treated as a pretty fable, a bit of art extravagance. Not a word can you find in Darbey's "Botany of the Southern States;" and the same ominous silence pervades that later and more pretentious work, Chapman's "Flora of the Southern States." This luckless Lily of Audubon is scientifically tabooed. Luckless, was it said? Well, this abjured beauty of the good man has fallen into luck at last. When neither sought nor expected, a species of poetic justice has lately been reached; for, in the person of a lady, learned in such lore, we have "a Daniel come to judgment." Last summer, in Florida, Mrs. Mary Treat rediscovered the long lost flower of Audubon. Yes, there it was blooming in the semi-tropical waters, and from its golden chalice this excellent lady drank the exquisite pleasure of a scientific discovery, and sweeter still, the privilege that she could bid pass away that cloud of incredulity of over a generation of years. In fact, it was communicated to that Nestor of American botanists, Professor Gray, and was duly acknowledged. It was truly the long-ignored *Nymphæa lutea*—Audubon's Yellow Water Lily.—*Professor Lockwood, in Popular Science Monthly.*

Editorial Portfolio.

OUR FRONTISPIECE.

Our picture this month is simply and purely a nearly wild and uncultivated tropical view, though in their general vegetation such scenes are often very beautiful. In this scene there is a little hut, the dwelling, it may be supposed, of some poor native of the country, who, although leading so humble and probably indolent a life, may yet be rich in contentment, and in the luscious and nutritious fruits indigenous to and abundant in the tropics. A very graceful and lovely Date Palm (*Phoenix dactylifera*), occupies a prominent position in the foreground. The fruit of this valuable tree is the sole means of support to nineteen-twentieths of the population of Fezzan in north sub-tropical Africa during nine months of the year; forming the food of beasts as well as of human beings, "the oases being bare of herbage." Though it is cultivated as far to the north as 41° in Spain, as well as in the south of France and Italy, at Athens and at Smyrna, the fruit does not ripen there. Its true native home is the north of Africa—Egypt, Nubia, Syria, Arabia Felix, and Persia. The range of the Date Palm is limited toward the south by the region of equinoctial rains. A sandy and well-watered soil is that which best suits this tree, for which reason it is always found in the great African deserts in the neighborhood of springs.

With regard to the successful cultivation of the Date Palm in California, we are informed that one at Newcastle, belonging to Dr. Frey, is now in bloom, with every prospect of bearing fruit this season. This, if true, is interesting to our horticulturists. The *Alta*, in an editorial article on the 28th of May on

the "Industrial Condition of the State," states that "the Date Palm would have been planted extensively in our State if people had felt confidence in its fecundity, even after so long a period as twenty-five years, and no Palm tree could have begun its growth at Newcastle before 1852. But the Palms at Los Angeles and other places in Southern California continued to be sterile after they were fifty years old, and those at Wolfskill's place, in Yolo County, have, we believe, not yet come into bearing, though nearly forty years old. There are 100 trees or more in the State, and as far as we know not one bears regularly. The fresh fruit of native growth is never seen in San Francisco markets. This report from Newcastle suggests that the Palm tree may be valuable for its fruit in the New as well as in the Old World. If it will bear at the age of twenty-five years, it will find favor with many farmers who have heretofore neglected it. The tree is beautiful, and large groves of it in the San Joaquin, Salinas, and other valleys would add much to their attractiveness. It would be interesting to know how many trees Dr. Frey has, from what kinds of seed they came, when they were planted, how they have been cultivated or watered, whether they have ever been injured by frosts, and so on. The elevation above the sea of the railroad in front of the Newcastle station is 970 feet, and the climate is as warm in summer and winter as at various places in Mesopotamia, where the Date is one of the chief agricultural products."

GIGANTIC CABBAGE ROSE.

The largest Rose that we have ever seen, came to our notice a few days since through the courtesy of the *Evening Post*. It was grown by George Laws, 109 Fell Street, Hayes Valley,

in this city. Its measurement was six inches in diameter, making it of course eighteen inches in circumference. We believe it to be the old Cabbage species, and such it was considered by some of our professional florists. They also stated that it was the largest Rose they had ever met with. We are informed by the owner that the bush is now full of similar specimens. Its color was about a medium shade of pink, with purplish pink edges on some of the outer petals.

WORK FOR THE MONTH.

The early part of the spring of this year, owing to its dryness, has been rather unfavorable to all kinds of gardening, both in and out of doors, and the professional florists and nurserymen were much disappointed in making good sales, and those who had much stock on their hands, and had made considerable outlays, lost a good deal of money. We have had no late rains, and the soil became very dry in some places as early as the first of last month (May). This lack of moisture has been attended since, also, by strong and cold winds (though with little frost), during the greater part of April and May. Notwithstanding this the development of all kinds of vegetation, as well as the maturing of the spring crops, owing to early rains in October, and very little hard freezing, has been great, and the advent of spring nearly a month earlier than usual.

Notwithstanding some of these unfavorable circumstances the vineyards and orchards promise a large crop, although the grains will fall short over a large extent of the great interior valleys, and have caused great disappointment to many, who, at the earlier part of the season for plowing, had reason to expect an abundant crop of cereals.

However, things in general might be very much worse than they are, and therefore we see no sufficient cause for complaint. Owing to excellent irrigation from wells in Santa Clara and some other valleys, there is an abundance of Strawberries and other both large and small fruits, the last especially. And what we consider unfavorable weather and a lack of moisture has not deprived us of plenty of all the fruits and vegetables for the production of which our State is remarkable.

All that California wants to make it the most prosperous country on the globe, is a thorough system of irrigation where it is practicable. Wherever the waters of our lakes and rivers can in any way be made available for this purpose it should undoubtedly be done. Where the work is too heavy for individuals, the State and Congress should aid all legitimate and *bona fide* enterprises, which may seek to accomplish the desired object.

Vineyards and orchards should be thoroughly examined. Mildew, if permitted to spread in the vineyard, will do much damage. A rising ground is the best for Grapes with, of course, a soil in good health, but not too rich. An excellent remedy for mildew is an application of sulphur wherever any traces of this disease appear. In the orchard, too, various insects here are increasing, especially the nest caterpillars, which, destroying the foliage, do much harm, and if they can be extirpated before overrunning your trees, much labor and annoyance may be saved.

This is an excellent time for the propagation of all kinds of soft-wooded flowering plants, such as Geraniums, Fuchsias, Heliotropes, Pelargoniums, Petunias, Verbenas, Begonias, etc.; also for the propagation of Pinks and Carnations.

All cuttings should be well sheltered during bright days. The sand in which you intend to plant your cuttings should be well saturated with water before planting, so that you may not be compelled to water soon afterwards. The grand secret in California in the treatment of all tender seeds and cuttings, is to water sparingly. If they are placed close under glass, well shaded, and with a moderate bottom heat of fresh manure and tan, sufficient moisture will be condensed continually to make watering unnecessary until the cuttings are rooted, or the seedlings well advanced.

Thomas Meehan, one of our best practical horticulturists, in speaking of bedding plants, observes: "The modern style of planting in masses affords great scope for a tasteful arrangement of colors, either in the same bed or by arrangement among a set of flower-beds." [This may be seen to advantage in the garden of Governor Stanford in this city, formed by his experienced gardener, Mr. Jas. Murphy.—Ed.] "The ribbon style," Mr. M. continues, "of flower-gardening beds in long, narrow, and winding strips and coils or circles, is also popular for the same purpose. It requires, besides, good taste in arranging colors harmoniously, judgment to select those kinds that will continue in bloom the whole season, withstanding well the summer drought, and that will harmonize in habit and growth with one another.

"As the plants in the borders grow, those in masses may be much improved by being pegged down over the surface. We can then train shoots where we wish, and thus cover the beds much sooner. Pegs for this purpose are best made by getting any straight shoots of trees, about one-fourth of an inch thick and cut into four-inch lengths, then

splitting them down the middle into two. These pieces are then bent in the middle like hair-pins. Pieces so split seldom break in doubling."

It is not too late to set out Dahlias. They require a very deeply dug soil, and cow manure is best for them. They will bloom too late if planted in shallow or dry ground, and then the enjoyment of them can not be had at a time when they are much prized. Plant duplicates of each sort. They are very gay and showy flowers, and set off a garden when viewed close or far off.

Tuberose may also be put into the beds this month. They do best in a warm, rich, sandy soil. Their hearts must be well ripened to flower well. Mr. Meehan states, No. 1 is the bulb that will not flower; No. 2, the one that will.

The treatment of the Palms in our genial and mild climate is not very difficult. The Date Palm will do well in the parlor in our winter and early spring months. It may now be set out in the open ground, either in tubs or planted out in beds. It will thus send out a bunch of flowers in this mode of preserving its health, but will not mature its fruit unless in a warm conservatory. All the species of *Chamærops*, to which the Palmetto belongs—the Sabals, *Lantania*, *Seaforthia*, the various kinds of *Areca*, *Leviston*, several kinds of *Thrinax*, the *Zamia*, and Sago Palms, can be recommended with safety, without being obliged to keep them in hot-houses here. At any rate, these last will thrive well as window plants in the cold seasons, and also in cool green-houses.

PUBLICATIONS RECEIVED.

Connected with Dick's Garden Hand Books, we have received "The Vegeta-

ble Garden," by Hogg: New York. For sale at Roman's. Although this neat and complete guide to the cultivation of vegetables was written for the latitude of New York, yet, as the author says, "due allowance must be made for places north or south of that latitude. As a general rule, a degree southward or northward, as the case may be, is equivalent to five or seven days earlier or later. Climates are sometimes local, being influenced by various circumstances, such as mountains, forests, lakes, or the sea; so that the isothermal lines of a country never run exactly on the lines of latitude. In such cases allowances must be made for such local variations." This is true, and it must be calculated in cultivating vegetables in California that we are at least six weeks earlier than the State of New York. Owing to the mildness of our climate, too, all the year round, we can raise successfully and with much less trouble and labor not only all the vegetables there used, but all the more delicate ones, in the open air, with very little need of any early forcing. Our climate and facilities for successfully cultivating vegetables and other plants, is very similar to many of the Southern States of the Union—Alabama, Georgia, Louisiana, for instance; but our winters are even milder than their's, and freer from any piercingly cold winds and cutting frosts. The present work under review will be found not only very useful and instructive for us here in its general laid-down principles, but also in many of its rules, practice and particulars for minute routines of cultivation.

The publishers, we find, intend issuing at short intervals three other garden hand books—the "Flower Garden," the "Fruit Garden," and the "Greenhouse and Window Garden." Until

we are far advanced enough on such matters in our State, and some of our cultivators are sufficiently expert in practice and knowledge of our climate and modes of raising productions in all these important departments of horticulture, and sufficiently educated in ease of writing or composition of language, with a suitable scholastic training, foreign works, like these manuals, will come in to aid us much in many ways; and we welcome their advent among us. Being at any rate suggestive, we can learn a good deal from them. It is much easier to reduce or modify any information that we may receive, than to enlarge usefully and understandingly on it, or to originate new rules and valuable practices, adapted to the soil, climate, and circumstances of any particular region, or district of country. There is no want of size of fruit or vegetable produce on our coast; what we most seem to need is a better quality of many articles, and especially a greater variety of good fruits—the Strawberry and Peach for example. Irrigation is a necessity for us in many cases, although it deteriorates the flavor of some fruits and vegetables. If we can manage to raise some things by deep plowing and spading, and constantly stirring and spading without so much watering, we shall improve the quality of many fruits and vegetables.

A PAMPHLET containing a description of Dr. Johnson's "Thirty Dollar Health-Lift and Lift-Exercise," the only one that received the Centennial Award. A. H. Andrews & Co., 211 and 213 Wabash Avenue, Chicago, Ill., and 619 Broadway, New York. Among many other things this little treatise explains the philosophy of this machine and lift-exercise, for what complaints it is beneficial, testimonials, etc. There can be no doubt whatever that a given amount

of physical exercise is daily required by every person, which may be taken in a longer or shorter time, by various methods. The time with the Lift may be from ten minutes to four hours, according to the means employed. We have always recommended for health plenty of daily exercise in the open air, and this is the reason why gardening and cultivation of flowers is so desirable for all classes of persons, and especially for ladies. But when the business of any person is such that he or she can not do this, and are compelled to spend most of their time in sedentary occupation in doors, then this Health-lift comes into most valuable play, and possesses many advantages. It gives the greatest amount of general and invigorating exercise in the least possible time, with the least possible trouble, fatigue, and exhaustion; curing the sick, invigorating the healthy, and strengthening the weak. This exercise can be taken at home *ad libitum* at any time. The lift is very light and cheap, and can be carried in the bottom of a trunk. We strongly recommend it to sedentary people.

ACADEMY OF SCIENCES.

Dr. Kellogg read a paper on a number of new plants, under the following names: *Spheralcea insularis*, *Oenothera frutescens*, *Trixis insularis*, *Heterocodon hispidissimum*, *Astragularis insularis*, *Phacelia plumosa*, found on the coast islands of California by the late Dr. Veatch, who was the first naturalist to make a collection on those islands; *Cnicus Murinus*, a species of Thistle, found at Lone Mountain by the same naturalist. *Gonolobus barbatus*, variety *subauriculatus*, collected by Captain W. R. Fisher, on the Gulf of California; *Mimulus Clarkii*, by Joseph H. Clark, of Mendocino County; *Berberis*

Nevadensis, by Dr. Harkness, found in Fresno County.

A plant, common in San Francisco, *Soliva Pedunculata*, was described as a new plant. Specimens had been sent East, but the Eastern botanists had not seen fit to admit the new species. It differs from the *Soliva* described in their books.

Three new plants, found by Henry Edwards, Esq., were described: *Streptanthus Edwardsii*, found at Knight's Landing; *Collinsea ochroleuca*, or White *Collinsea*, found at Skaggs' Springs, Sonoma County; and a remarkable specimen of the Golden Thistle, *Cnicus-Vaill* (not of Gray) *Citrinus*, a plant of a bright yellow flower.

A collection of plants was received from Mrs. Dr. Tilling, of Oakland; and another (*Algæ*) from Dr. Anderson, of Santa Cruz.

WOODWARD'S GARDENS.

In a late visit to these celebrated public grounds, now made famous the world over for the numberless beautiful and rare objects in nature and art which are there represented and exhibited, we found many important and interesting additions and improvements; for the proprietor's motto is always onward and excelsior. One of the novelties is a new museum on the hill near the restaurant, the walls of which are hung, and the shelves filled, with many curiosities, among which are numerous rare and valuable Indian implements of peace, and weapons of war, from the islands of the South Seas, and our own inland Indian tribes, these latter, especially, rendered more precious every year to the public and the antiquarian from the speedy extinction now occurring of those nomadic and fast fleeting races. One of the mementos there pre-

served is a portion or stump of the cocoanut tree under which Captain Cook was clubbed to death. Here are the open jaws of the man-eating shark, sufficiently large in their capaciousness to take in easily the body of a man. Also a fine specimen of hard limestone rock pierced in all directions by a species of *Pholas dactylus*, or prickly stone-piercer—a variety of shell-fish, with some models in wood and stone of Indian boats and canoes. Here we saw a very beautiful tray made of every kind of California woods, very elegantly and elaborately arranged. A large case of *lusus naturee* in birds and beasts attracted our attention, with many dwarfed and mal-formed specimens.

The museum of fish, crustaceans, serpents, etc., in the Photographic Gallery, over the Aquarium, has now had added to it an admirable, very striking, and life-like stuffed representation of the buffalo of our plains, hunted to death by a pack of prairie wolves. The buffalo has an arrow stuck in its side from some supposed Indian hunter, and from the wound blood is flowing copiously. The howl or yelp of the wolves is only wanting to make this scene true to life. In the same room is a very fine preserved specimen of the cameleopard.

The Aquarium is now well filled with various families of fish and crustacea. In consequence of the many fractures in the glass, from the settling of the stonework of the building, each compartment or cistern in the cavern is to be made separate, so that the glass will not be so injuriously affected in future.

In consequence of the want of sufficient water at Berkeley, near the University, the Fish Commissioners of the State are about to make arrangements with Mr. Woodward for transferring from the University the fish breeding

apparatus to the Gardens. This will be effected by making the seal pond, near the Photographic Gallery, the site for the fish-breeding processes, and over this there will be a continuation and enlargement of the present Aquarium. Much interest will be thus excited in the public mind by witnessing these operations on a much larger scale than has heretofore taken place in the small breeding trays and process near the present Aquarium.

In the main yard of the Menagerie considerable enlargement is taking place, and improvements projected in making galleries all round the lot, not only for the purpose of accommodating more animals, but to render the view of the beasts already there more convenient. New places and stalls are being made for the ruminating animals. Near the engine house, for warmth, two new apartments with glass fronts have been made, in one of which is a sloth, and in the other a boa constricta of great length and thickness.

In this lot also is to be constructed a new gymnasium for the children of the public and other schools. Also on the same level as the Camera Obscura there is to be erected a hall for the exhibition of mechanical inventions, ingenious machinery, and models.

The Museum and Cabinets of Natural History, opposite the entrance gates, are to be enlarged on each side and at each corner of the building so that more light may be thrown upon their contents; and in many instances the light will be cast into both sides so as to show the objects to the utmost advantage.

The horticultural department of the Gardens is in fine condition, both in and out of doors, the trees, shrubs, and flowers looking splendidly. The rock-work round a small corner pond, near

the large fountain pond, is delightfully bordered with a large and lovely varied collection of rock, water, and other plants, and in this small piece of water (in which are gold and silver fish, and some young salmon), the White Water Lily (*Nymphaea odorata*), is flourishing finely, and at this time in bloom.

The Conservatory of miscellaneous vegetation is also in capital order, and resplendent with many various and rare tropical, semi-tropical, and more hardy plants, and choice flowers. Among them we noticed *Pritchardia pacifica*, *Pandanus utilis*, Screw Pine (splendidly large), *Cocos Romanzoffia*, *Chamærops excelsa*, *Cycas revoluta* (very large and fine), *Pritchardia martii*, *Areca rubra*, *Levistonina sub-globosa*, *Seaforthia robusta*, *Diffenbachia picta*, *Phœnix Sylvestris*, *Phœnix canariensis*, *Latania rubra*, *Sabal umbraculifera*, *Phœnix Oleanensis*, *Oreodoxus regia* (Royal Palm), and many other choice and rare varieties of the Palm family.

In the garden is a fine specimen of the *Agave Americana* or Century Plant, thirteen years old, with a flower stem thirty feet high, and which grew four inches in twenty-four hours, showing that it is an error or popular fallacy that it takes 100 years before it comes into bloom.

FRUIT CULTIVATION AND REPORT OF FRUIT AND VEGETABLE MARKET.

The best soil for the Pear tree is a stiff and rather hard adobe or clayey soil, and a sandy soil is one that should be avoided. The same rules also apply to the Plum. This quality of land for these trees produces thrift and vigor of roots, wood, leaves, bark, fruit—in short, everything that is desirable in those trees. On the contrary, notwithstanding our favorable climate, a sandy

loam will encourage bark lice, stunted sickly growth comparatively, and promising a short healthy life only. Nor should our stiff soils for these trees, or for this description of fruit, be fertilized very strongly, but they should be well tilled and drained.

Sowing any kind of grain is injurious to orchards, but if anything is planted between the rows of trees put in some hoed crop, such as Potatoes. Indian Corn will also do but little injury, but in California we have not much land suitable to this crop. Pigs may be turned into the orchard to feed on any refuse crop, but when this becomes exhausted, there is always danger of their attacking the bark of the trees. But earlier in the season hogs are really beneficial in mellowing the soil and destroying insects. An excess of growth in all orchard trees must be avoided, as well as a lack of it. Extremes of all kinds are hurtful; all rash pruning is pernicious, but thumb and finger work, and that lightly, when the trees are young is the best, avoiding especially all overgrowth of fruit. The main points that claim attention are proper drainage, moderate irrigation when necessary, and overbearing. We should aim to have moderate yields of fruit, and good quality. It is the moderate yields that make the permanent crops, giving a fair annual profit. He that is not contented with this indulges in extravagance, and is likely to fail in the long run in fruit cultivation. Good culture is a healthy growth both of wood and fruit, avoiding excess in either.

Since our last report there have been several additions of different fruits in our markets. The fruit crop generally is very promising. About the last of April Cherries gradually increased. In the first week in May the first Madeline Pears and Green Apples made their ap-

pearance, the crops of both being some weeks earlier than the first of the season last year, but this has been the case with all our fruits this year. Cherries came in freely, but the crop will not be so large as expected. The first ripe Apricots were received from L. W. Buck, of Pleasant Valley, Solano County, and brought 30c. per lb. The first consignment of Raspberries were received from Newcastle, Placer County. This locality has proved to be specially adapted to the growth of berries, having produced the first last season. Receipts of Strawberries were very plentiful at the same date as above.

Apples advanced, as the old crop is quite limited—only fifty boxes arrived on the Oregon steamer. Nearly the last of the Los Angeles Orange crop was at hand. There was a good supply of Tahiti Oranges to fill the demand. Lemons continued in good supply. The last Australian steamer brought 1,085 bunches of Bananas from Honolulu. Regular shipments of Mexican Limes reach us by every steamer from Acapulco, and Pineapples from Panama. Vegetables were lower, as supplies came forward in great quantities. There was an abundance of everything at very low rates.

Raspberries were more plentiful and cheaper. Blackberries and Apricots came into market the second week in May. The receipts of Strawberries were rapidly falling off, and prices were firmer. The second crop was of much better quality, and shipments increased as soon as they began to arrive. There was a good supply of Tahiti Oranges, and more due. We are indebted to Howe & Hall for the following quotations: Apples—Choice, \$2 to \$3 per box. Pears—Choice, \$1.50 to \$2.50 per box. Cherries—Choice, black, 15c to 25c. per lb.; common, red, 5c. to

12½c. Apricots, 5c. to 8c. per lb. Strawberries, \$5 to \$8 per chest. Raspberries, 30c. per lb. Gooseberries, 8c. per lb. Blackberries, 30c. per lb. Red Currants, 50c. per dwr. Oranges, Tahiti, \$18 to \$20 per M; California, \$20 to \$35 per M. Lemons, Sicily, \$10 to \$11 per box; Los Angeles, \$15 to \$25 per M. Limes, \$10 to \$15 per M. Bananas, \$2 to \$3.50 per bunch. Pine Apples, \$6 to \$8 per doz. Cocoanuts, \$5 per 100. Dried Fruit—Apples, 4½c. to 6c. per lb.; Peaches, 7c. to 10c. per lb.; Pears, 7c. to 8c. per lb.; Plums, 3c. to 4c.; pitted, 12c. to 13½c.; Prunes, 12½c. to 17c. per lb.; Figs, white, 6c to 8c.; black, 5c. to 7c. per lb.; California Raisins, \$1 to \$2.50 per box. Vegetables—Cabbages, 50c. per ctl.; Cucumbers, 50c. to \$1.50 per doz.; Asparagus, 75c. to \$1 per box; Tomatoes, 7c. to 9c. per lb.; Green Corn, 18c. to 20c. per doz.; Summer Squash, 4c. to 5c. per lb.; Rhubarb, 3c. to 3½c. per lb.; Green Peas, 1½c. to 2½c. per lb.; String Beans, 4c. to 8c. per lb.; Garlic, 2c. to 3c. per lb.; do, new, 7c. to 8c. per lb.

About the latter end of May the fruit market was well supplied with Currants, Cherries, Pringle Apricots, and Oranges and Lemons. The receipts of Strawberries, Gooseberries, Raspberries, Blackberries, and Royal Apricots were limited and prices maintained. The first Peaches of the season arrived on the 23d of May, and retailed at 60c. to 75c. per lb. Green Apples and Madeline Pears sold at \$1 per basket.

The receipts of Strawberries fell off about the time above mentioned. Most of the Strawberries for some time past have been rather small generally, and rather indifferent in flavor. We have seen in Cincinnati the Prolific Strawberry raised (which we chiefly raise here), in rich and deeply worked ground,

there averaging three inches in circumference, and many of them three and a half inches. These had the benefit, to be sure, of the natural rain, and we have to resort to irrigation late in the spring, and all the summer and most of the fall. Still, we think our cultivators of that valuable, healthy and delicious fruit here, could grow them larger and of better flavor if more pains were taken in the preparation of the ground, by cultivating it with a greater depth before planting. It is desirable, also, that new varieties should be introduced and tested as soon as possible for next season's crop; and to help them in that direction we append the following description, by A. H. Haines, Malden-on-the-Hudson, New York, of varieties that are especially noteworthy, and which have given satisfaction where tried. They may not suit our soil and climate, but they or some other good kinds should be thoroughly tried, and seen if we can not make some improvement in this fruit. One thing is absolutely necessary, namely, that they should be firm for carriage to market.

PROUTY'S SEEDLING.—This is a new variety whose name has been heralded from one end of the country to the other. Being of such recent origin, there are few who can speak definitely in regard to its properties, as would be the case with the other sorts. However, the qualities that it has already revealed, certainly entitle it to receive a cordial welcome. The plants have proved to be very productive, even upon hot sandy soils, and bear good-sized berries, that readily command a good price, and help the grower to realize a handsome profit. So promising do they seem to be, that many this spring are devoting large plots of ground to their use.

GOLDEN DEFIANCE.—This is a novelty

that many will appreciate. Who has not noticed the eager longing and constant strife that there is for obtaining something odd, articles of vertu, etc., to decorate our houses with. Those also who happily spend their leisure time and hours of recreation in their gardens, have the same powers of appreciation for things that are novel in the fruit world, and by such this Strawberry with a golden name is being cordially welcomed. The plants seem to understand the responsibility that rests upon them in producing these berries of gold, and are strong and vigorous growers—frequently immensely productive. Let no one expect to see these berries glittering in the sun like twenty-dollar gold pieces fifty yards away; however, on nearer approach they will be found to be very much larger, and presenting an appearance of beauty that is surpassed by hardly any other berry. The Sterling, Monarch of the West, Kerr's Prolific, and Great American still continue to merit and receive a large share of public favor on account of their immense size and fine qualities. There are still several newer varieties that I might mention, but they have not yet been sufficiently tested to warrant a definite description.

Mr. Haines continues: "When such treasures as these can be grown so easily, is it not strange that so many should be without them? It only requires a little plot of Strawberry plants a rod or two square, to give a delicious feast to the family for many days in succession. Mammoth berries may be obtained from these varieties if the following easily practiced formula is heeded: Enrich the soil liberally, spade the ground deeply, and cultivate frequently. Considerable care should be taken as to where the plants are obtain-

ed from, as spurious plants in great numbers will be sent through the mails to all parts of the country during the coming season. The genuine plants will fully verify what I have written in regard to them, and even royalty would gladly assist in feasting upon the berries that they will produce."

THE POMEGRANATE.—Gen. Stoneman is cultivating the Pomegranate to the extent of 5,000 trees at San Gabriel, Los Angeles County, and thinks that he can make it succeed in the Eastern markets by sending it there in large quantities in proper cars for the purpose. This, we think, may be classed among the promising experiments.

BANANAS have been cultivated with success in the open air at Santa Barbara, Los Angeles, and other places on the Southern Coast, and may become important in the agriculture of California. Not enough have been grown to appear regularly in the market, and they have not been sent for sale in San Francisco. The only variety that can be grown here with a profit is the sub-tropical or Florida Banana (*Musa Cavendishii*), the *Musa Paradisiaca* or tropical kind being too delicate for the occasional frosts from which even the Los Angeles region is not exempt. The Banana has a perennial root, which sends up half a dozen sprouts, and each one of these, if taken off when a foot high and planted separately—eight feet apart is a good distance—will bear in eighteen months. If not transplanted till six feet high it will bear in a year. The stalk dies down when two years old, and a new one appears. The plants need irrigation, careful cultivation, and rich soil, and will probably pay well for them. The tropical Banana will support ten times as many

persons to an acre, it is said, as wheat; the productive capacity of the sub-tropical variety in California is yet to be proved.

RED SPIDERS.—These are the most deadly enemies of our floral pets that we have to contend with. If plants can be kept in a cool, moist air, they will seldom appear. Large-leaved plants can be kept free from them by frequent sponging. A thorough sprinkling or syringing two or three times a week is a good preventive. Turning the plants upside down, and dusting the under side of the leaves with red pepper, will sometimes destroy them. These insects are so minute as to be scarcely visible to the naked eye, and often commit extensive ravages before the source of the mischief is discovered.—*Vermont Chronicle.*

HOT WEATHER.—On June 11th the excessively hot weather did immense damage to the fruit in this State.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING MAY 31st, 1877.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 18 Market Street.)

BAROMETER.

Mean height at 9 A. M.	30.03 in.
do 12 M.	30.03
do 3 P. M.	30.02
do 6 P. M.	30.02
Highest point on the 31st at 9 A. M.	30.11
Lowest point on the 2d at 6 P. M.	29.93

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	61°
do 12 M.	65°
do 3 P. M.	65°
do 6 P. M.	61°
Highest point on the 18th at 3 P. M.	73°
Lowest point on the 24th at 6 P. M.	57°

SELF-REGISTERING THERMOMETER.

Mean height during the night.	50°
Highest point at sunrise on the 15th.	54°
Lowest point at sunrise on the 20th.	48°

WINDS.

North and north-west on 3 days; west on 28 days.

WEATHER.

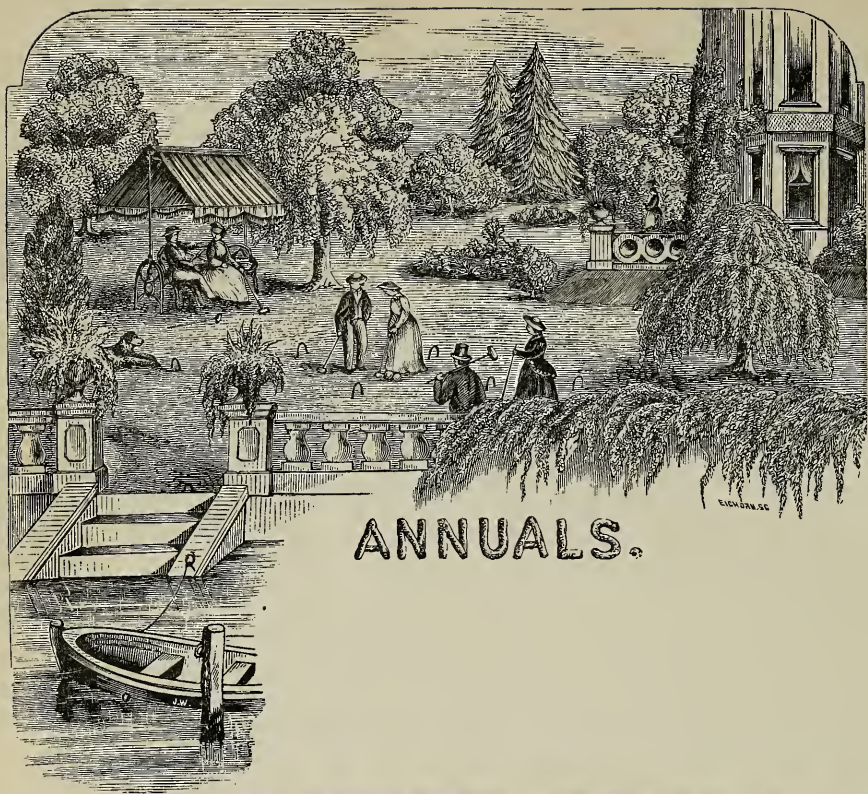
Clear all day 8 days; cloudy on 9 days; variable on 14 days.

RAIN GAUGE.

	Inches.
28th.....	0.13

Total.....	0.13
Previously reported.....	9.87

Total up to date.....10.00



ANNUALS.



PERENNIALS

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. VII.

SAN FRANCISCO, JULY, 1877.

No. 7.

CUTTING AND PRESERVING FLOWERS.

It is desirable in order to make cut flowers last, and to look well as long as possible, whether they are obtained wild from the country, or are of artificial culture from the garden, to attend to the rules and suggestions which we here presume to offer to our patrons. In the first place, never cut your flowers anywhere if you can avoid it during intense sunshine, nor allow them if possible to be kept exposed to the sun or wind; do not collect them in very large bundles, nor tie them tightly together, as this hastens their decay. Do not pull them, but cut them cleanly off the plant with a sharp knife or a pair of keen old scissors—but the first is by far the preferable process; when taken in doors, place them at once in the shade, and reduce them to the required length of stalk with a sharp knife, by which means the tubes through which they draw up the water are left open, and the water is permitted to ascend freely, whereas if the stems are bruised or lacerated these pores are closed up. Use pure water to set them in, or pure sand of some kind in a state of proper saturation, sticking the end

of the stalks in it, but not in too crowded a manner. This use of sand in dishes shows flowers off to great advantage because it admits of each flower or piece of foliage to be placed in the most tasteful position. If in water alone, it ought to contain a pinch of salt, and better if a few grains of salt-petre were put in for about every pint of the fluid. The water should be changed daily, and a thin slice should be cut off the ends of the stalks at change of water. Water about milk-warm, or containing a small quantity of camphor, dissolved in spirits of wine or cologne, will often revive flowers when they have begun to fade. In some cases liquid ammonia may be advantageously applied to the stems for a few minutes to revive flowers. Powdered charcoal saturated with water is also a good medium to stick them in, and the thinner they are disposed of and kept the better. To keep well, flowers should not, after being cut, be placed in localities where there is tobacco smoke, or tobacco smoking, or any bad ventilation; neither should the rooms be too heated. A cool temperature during summer is favorable for them, but they should not be exposed to a

strong draught of air or wind. Shade them from very bright sunshine. Place a globular or pyramidal glass over them, if you have one large enough, during the night, or indeed at all such times as they are not purposely exhibited. The removal of the slightest symptom of decay is necessary. When carried to a distance, take them in a shallow, air-tight tin case, or cover them with large sheets of paper to exclude the light, and defend them from our dry spring or summer winds. This is very desirable, when on any of our rural trips in the vicinity of our city, they are exposed to our trade gales. A common newspaper—for instance, the *Alta* blanket—will answer for this, a very good purpose.

THE HUASCO RAISIN OF CHILE.

The Huasco of Chile is probably the most delicate and delicious raisin in the world. The quantity produced is quite limited, and it is scarce and dear even in that country. Small consignments occasionally come to this market, but the supply is irregular, and as the fruit can not be sold for less than fifty cents per pound, our grocers find but little call for it. Thinking that the vine might be worthy of a trial here, and that any information regarding it would be of interest to the raisin producers of the State, a gentleman connected with the *Call* wrote to an intelligent agriculturist at Valparaiso, formerly of California, and received the following interesting particulars :

About sixty miles from the port of Huasco, Chile, South America, is situated quite an extensive valley, celebrated for its excellent raisins, which are divided into two classes. One is called the Muscatel, and is inferior in quality to the Huasco. The latter class

is scarcely procurable, on account of the demand for it, and, comparatively speaking, the limited quantity raised. The price probably exceeds that of any other raisin cultivated in the world, and as high as fifty cents per pound has been paid for them. The former is inferior in quality and taste to the latter, and is preferred to the Malaga raisin by many strangers.

The ground outside, or surrounding the vineyard, is laid out in paths, over which an arbor is built, and over this grape-vines are carefully trained to keep off the early spring winds, which sometimes affect the young sprouts. The vines inside the square are planted in rows 6 feet one way by 8 feet the other, the intervening space being planted to alfalfa, from which two or three crops are cut for hay each year. The vines are trimmed in bush or tree fashion, and in the fall of the year all extra wood is cut off, leaving two eyes to each branch. When it is discovered that a branch is a poor bearer, it is cut off close to the trunk. The vineyards are planted on the side hills and in the valleys.

The vines are thoroughly irrigated (no half way work will do), first, when the eyes begin to swell, again, when about to blossom, and lastly, when the fruit is formed. There is no rain in the valley during any part of the year. Dews are abundant during the winter, and the summers are warm and dry.

When fully, but not over ripe, the fruit is carefully removed from the vine and taken to the thatched-roof open sheds and hung up, care being taken that the bunches do not touch each other, and each day they are carefully watched to see if any of them need turning. Once dried, the different grades of raisins are separated and packed in boxes of 25 pounds each.

The Huasco Grape-vine was imported into Chile by the Spaniards long before the establishment of the Republic, and is a Spanish Muscat. The berry is of a golden yellow color, large size, and the vine a good bearer; the raisin is yellow and quite transparent. It is much esteemed for its peculiar flavor and is used for the table exclusively.

A great many attempts have been made to transplant the cuttings to other parts of South America, but in each case it has been a failure as far as the production of raisins of the same flavor and quality is concerned. It is a curious fact, as yet unaccounted for, that different vineyards in the same valley do not all produce alike; some give the Muscatel and others the Huasco. It is supposed that certain action of the winds makes the difference, the most sheltered locations giving the best results. A few cuttings were sent to California three years since, but what success attended them is unknown. C. T. Ward raised a few plants from seed at Hayward, Alameda County, and it is presumed that by this time they have borne fruit, being now four years old. The vines were planted in the second row of his vineyard, in front of the the house, on the left-hand side of the path as you enter at the gate. Probably the value of them is not known to the present owner of the place. Could a suitable location be found for this grape in California, it would enrich the owner of a vineyard. It is worth a trial, especially in the southern portion of the State. It would be difficult to procure proper cuttings, and more difficult to get them safely to San Francisco. The better mode of giving the grape a trial, would be by procuring the raisins and planting the seed. In four years seedlings would bear fruit, at least they do so here. From my ob-

servations in this country and in California, I am satisfied that a superior raisin grape could be raised from the seed of the Huasco in the southern portion of California where there is little or no rain. A small valley, no matter how rocky and stony, should be selected which is surrounded by hills, in order to give protection from winds, and where the full benefit of the sun can be had. It should not be less than 250 feet above the level of the sea, and should have a small stream of running water for irrigation. Well water, unless it stands some time in a deposit, is not good for the plant, and a redwood tank in this country has been proved to affect the water to the injury of the vine. Here they do not plow deep for setting out vines, and when once they begin to bear but little care is taken to cultivate the land. On the contrary, nearly every one plants his alfalfa between the rows, thus getting more profit from the land, while the vines do not appear to suffer from the treatment. Great care is taken in pruning.

FUNGI, EATABLE AND UNEATABLE.

BY NATURALIST.

"Various as beauteous nature is thy face.
 All that grows has grace,
 All are appropriate; bog and marsh and fen
 Are only poor to undiscerning men.
 Here may the nice and curious eye explore
 How nature's hand adorns the rushy moor;
 Beauteous are these that from the view retire,
 But will repay the attention they require."

These lines of Crabbe we commend to the attention of those—alas! too many here in California (a new "empire," and therefore with better excuse) as well as elsewhere in the world—"undiscerning men," who have never asked what is the use of a Fungus, and who carry their ignorant contempt so far as to trample under foot, as noxious "toadstools," numerous species of vegetable

productions, not a few of which on examination are found to exhibit the most graceful forms and the most brilliant colors, as well as to supply (wonderful as it may appear, no doubt, to some) the most exquisite odors, and abundance even of the most palatable and nutritious food. What geometry shall define their ever-varying shapes. Who but a Venetian painter can do justice to their colors? As to shapes, some are simple threads, like the Byssus, and never go beyond this; some shoot out into branches, like sea-weed; some puff themselves out into puff-balls; some thrust out their heads into mitres; these assume the shape of a cup, those of a wine-funnel; these are stilted on a high leg, and those have not a leg to stand on; some are shell-shaped, many bell-shaped; and some hang upon their stalks like an English lawyer's wig; some assume the form of a horse's foot; others of a goat's beard; the *Phallus impudicus* is the very thing he calls himself. As to their colors, we find in one genus only species which correspond at every hue! As to odors, while some smell like cinnamon, some like ratafia, and some like the bloom of May, a person, enthusiastic though he may be, cannot discredit his nose, which is unmistakably and instinctively turned away from fungous odors, yielding an insupportable stench, an intolerable factor, the savor of a stale poultice, a smell of tallow, the smell of putrid meat. Very many Fungi are violently poisonous. Some have suffered much from indulging curiosity in only tasting a few of them. Some kinds of puff-balls are said to be quite pleasant in flavor and not injurious, but we would not like to make experiments, as some have done, with them. The mere tasting of some of them with the tongue has produced contraction of the jaws, sickness, pain

and heat in the stomach, as well as slight delirium. It is really not safe to follow one's nose, or to believe one's eyes in this matter, as the saying is. All noses are not equally furnished with keen and true olfactories, it would appear, and not a few are in some strange fashion abnormal. We have heard of a lady, from a reliable authority, who thought candle-snuff a delicious flavor. We know that it is true that in some instances the Russian peasants relish highly tallow candles and cart grease. However the famous botanist, Dr. Lindley, stated that in England at least they throw away many species of Fungi that are excellent, and that the people thus deprive their palates of much pleasant eating, and perhaps that those in common use are inferior to those that are rejected. But, we think, it is best to err on the safe side, and that the Mushroom, Charitarelle, Champigny, Morel, and Truffle are enough of the wholesome and sure ones for healthful and luxurious indulgence in that line. The Italian and Russian peasantry, and people generally, commit, it would seem, very few mistakes as to the quality of Fungi, and we on this coast and in the United States, may learn more about them in process of time.

As to the nature of the various groups of Fungi, they are undoubtedly true vegetables, in the main principles of their growth and structure, and divisible into species as definite as in other acknowledged parts of the vegetable kingdom. As to the habitats of Fungi, it is perhaps difficult to point out any substance or situation where conditions exist capable of supporting vegetation, in which they, in one or other of their forms, may not be developed. Their name is legion, and their province ubiquity. To enumerate but a few, and those of the microscopic kinds, the

Mucor mucedo, that spawns upon undried preserves; the *Ascophora mucedo*, that makes our bread mouldy; the *Uredo segetum*, that burns Ceres out of her own wheat and corn fields; the *Uredo rubigo*, that is still more destructive; and the *Puccinia graminis*, whose voracity sets farmers at defiance, are all Fungi. Indeed they are too numerous to designate in an article like this. But the great value of many kinds of Fungi is their astonishing resemblance to animal food, and their consequent usefulness as an article of human diet. Of all vegetable productions they are the most azotized—that is animalized—in their structure. As we all know, the common Mushroom, the Truffle, and Morel, are valuable articles for our markets; but more especially the first, whether in a fresh state or in the form of catsup, especially the use of the last in Europe and in the East. Mushrooms should be well cooked, and then, like any other nutritious food, they should not be indulged in without proper moderation. About thirty species abound in English woods. How many we possess in California must be settled in due course of investigation and discovery by competent botanists. In France, Germany and Italy, Fungi, we are told, not only constitute for weeks together the sole diet of thousands, but the residue, either fresh, dried or variously preserved in oil, vinegar, or brine, is sold by the poor, and forms a valuable source of income to those who have nothing else to bring to the market. Not knowing the language of the “Celestial Empire,” we cannot depose as to the Fungi eaten by the omnivorous Chinese, but that their number is legion we doubt not. But we must desist, our savory theme not half discussed. The question for our readers to decide is, should they feast upon Fungi, first, of course,

making themselves well acquainted with such as grow here, or fast out of mere prejudice, with many of the despised bounties of nature perhaps surrounding them in greater profusion than they have any idea of. There are works published on this subject, too, which they may carefully peruse, probably to be obtained at our best book stores. One of these writers (Badlam, M. D.,) preaches moderation like a Christian divine. Listen, O reader, and it shall be well with thee: “Nine-tenths of dyspeptics become so from over-feeding. Whilst it is an acknowledged fact that infants are over-fed, and that all children are over-fed, men are by no means prone or willing to admit that gluttony is perhaps the very last of childish things that they are in the habit of putting away from them. But then, though Mushrooms of various kinds (for there are many sorts of them) are not to be considered unwholesome, they are, like other things, to be used with discretion, and not *a discretion*.”

FLORA OF AUSTRALIA, TASMANIA, AND NEW ZEALAND.

BY A VISITOR THERE.

As California and the above named regions are all in what may be called the warmer temperate zone, the vegetation of those countries is of peculiar interest. We will, therefore, for the pleasure of our readers, state what a traveler has told of their trees, shrubs, and flowers. That part of Australia in which the English colonies lie is mostly low and even ground, compared with the northern part, which is hilly, but not mountainous; and in the southern part the grass is richer and the trees higher than in the north.

On the north side of Botany Bay the country resembles the moory grounds

of England, the land being covered with plants about sixteen inches high. The hills rise gradually behind each other to a great distance, with marshy ground between. On the muddy shores grow numbers of the singular Mangrove trees, both in and out of the water; they are very large trees, but usually not more than forty or fifty feet high, and bare of branches to a great height, the great trunks standing together like a range of columns. But the great peculiarity of these Mangrove or Mangle trees (*Rhizophoreæ*) is, that the seeds begin to grow before they fall from the scarlet berry which protects them; from which the root, which looks very much like a strong coral-colored fibre, suspended in a curious manner, till it drops into the mud below.

There are besides the Mangroves, a few different kinds of Palms, Gum trees (*Eucalyptus*), and a few shrubs; the Palms contrast oddly with the thoroughly English-looking crows we find there; but the swans, as black as the crows themselves, remind us where we are. The flocks of beautiful cockatoos and paraquets seem more in harmony with the gaunt, straggling, unfamiliar shapes of the Gum trees, which, where the wood has not been cleared, stand thickly together, destitute of leaf or branch to a height of fifty or seventy feet; but where they have room to branch they make a great display of their twisted elbows and bare arms, which have tufts of leaves only at the very ends. These trees, whose structure places them in the Myrtle family, seem generally to have little brush-like blossoms of a deep orange and yellow color, which sometimes grow thickly together like a little wreath all along the stem, filling the air with their fragrance, and attracting the bees to their rich stores of honey.

The Gum trees (*Eucalyptus*) and the extraordinary *Protea* tribe are the two trees most characteristic of Australia. The truest description which can be given of the *Protea* is, that, like *Proteus* himself, after whom they are so aptly named, they wear such various forms, that whatever we might say of one species would be belied by the next we met with. They are truly astonishing sights to a visitor's eyes; many of them have huge red blossoms, something in shape like the head of an artichoke, but they are almost all of different shapes and sizes. The foliage, too, is still more variable; in some, the leaves are broad and handsome, while in others they are as narrow as those of a Yew, or long and not more than three-quarters of an inch wide, and deeply toothed on both sides. In some respects the *Protea*s resemble the *Daphnes*, but differ greatly from them in others, particularly in the stamens being situated on the points of the calyx, instead of between the divisions, and in the uniformly harsh and rigid character of the leaves.

But as we have other sights to see, we must now sail up the magnificent harbor to Sydney—and from thence go further up the country, in a hope of finding some of those remarkable *Cherries* and *Currants*. Truly enough, we find occasionally something as to which we are puzzled at first to call it a Grape or a Currant. This plant, which is called the *Billardiera*, is a beautiful twining evergreen, with small, dark, green leaves and clusters of small, greenish-yellow, bell-shaped flowers, of a regular shape, and the stamens alternate with the petals; it belongs to a class called the *Pittosporum* tribe, and though not a vine, it is really not akin to it. So much for nauseous "Grapes growing on bindweed."—*To be continued.*

A FEW NOTES ON NATIVE AMERICAN GRAPES.

The United States possesses an immense number of native Grapes. It is stated by a careful and reliable investigator that there have been discovered up to this time, indigenous and those originated from them by culture, sixty species, and 200 varieties. Wild vines are especially numerous in Texas and California, but we have never heard that in the latter State, abundant as they are wild, they were of a kind suitable for the human palate. But this is not a matter to be regretted, as our climate is so mild, and so congenial to the growth of the vine, that all the known sorts in the world flourish here in the greatest perfection. All our varieties, including the most common kind—the Mission—have been introduced from foreign parts, and many native ones from the East, and from other portions of the United States, including the well known and valuable Catawba, which was first discovered and noticed by Colonel Murray in 1802, in Buncombe County, North Carolina, and who was at one time temporarily deprived of the honor of bringing this fruit forward, by some foreigners, who would persist in calling it a native of Hungary. So, also, the Schuylkill Muscatel was entitled by many the “Cape Grape,” from the Cape of Good Hope. But it has congeners in plenty in Louisiana. Mr. Longworth, of Cincinnati, deservedly called the “father of wine culture” in the East, insisted always that this was done with the intention of giving it “reputation.” Also the Isabella, another prominent and valued native Grape, was christened in the same way the Lespeyre, although, like the Catawba, it was a native of North Carolina. Texas has some Grapes peculiar to herself. These are

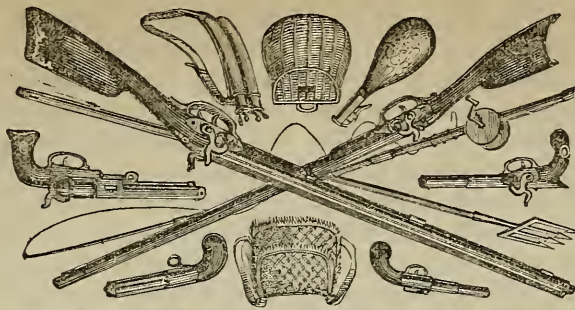
the “Mustang” and the “El Paso.” The Mustang is hardly considered anything deserving the name of a wine Grape. It is only plentiful, and without any merit worth speaking of as a wild vine for making a first-rate wine, yet it is considered tolerably good by some. But the El Paso produces a wine worth two dollars per gallon. It is grown chiefly in the El Paso Valley, which is of great extent and breadth. The Grapes, also, are dried into pretty good raisins. The Mustang wine resembles somewhat a rather inferior port wine. Florida abounds in wild Grape-vines, and some of the fruit is very pleasant to the palate. In Alabama they have for a long time made some tolerably good wine, as we are informed, and of various kinds. The vines there bear abundantly. The Scuppernong flourishes well there, and bears immensely to the acre, much beyond the other sorts. A bushel of bunches of the Scuppernong will yield three gallons of wine. Louisiana, Mississippi, and Arkansas abound in varieties of wild vines, called raccoon, bear, bull, chicken, and fox Grapes; but little wine seems to be made from these. “Bland’s Madeira” has been cultivated with a portion only of success. As is well known, a Grape may produce a superior wine in one district, and yet succeed but very poorly in another. In Georgia they have Grapes which they term Muscadines, producing tolerably nice wines; but neither there nor in South Carolina has much systematic growing been attempted. The Catawba, the Herbemont, and the Scuppernong are all natives of North Carolina. Ohio and some parts of the East are entitled to the honor of bringing these two first into notice. There are two species of the Scuppernong, the best having a white silvery skin,

with a rich appearance, while the inferior kind has a small black berry. The latter, we remember, old Mr. Longworth, a good authority, used frequently to say in his often humorous way, were only good for bullets. We believe neither of these kinds of Grapes have been tried in California. They will not grow, as we know, from cuttings, for we have tried them, and such, also, is their reputation everywhere. One that we planted with roots bore no fruit from some unknown cause, yet we should not be satisfied, we think, with this one trial only. But the skin of the best is thick, and, like all the native kinds, the pulp rather firm and hard. They say it is usual in some of the Southern States to use some sugar with the must of these Scuppernongs. The wine has a very agreeable aroma. Although a sweet Grape, it is, as is often the case, not abundant in such saccharine matter as to possess a very pure saccharum in the wine. Age is said to improve the wine, most especially when compared with the majority of other wines in the East. In Virginia there are good specimens of native vines. Norton's Seedling came from there, also the "Woodson" and "Cunningham."

Our thirty-eighth and forty-fourth parallels bear away the palm in Grape culture. We need not speak, of course of our already good wines in California. Nor of the various nice Grapes originated within about twenty-five years in Ohio, and north, east, and west of it; and the good wines produced from them. They have for some time been well known. But the history of the distinguished Catawba Grape is interesting. Major Adlum, a passionate cultivator of the Grape, found the Catawba in the garden of a German at Georgetown, North Carolina, and "aft-

ter a fair trial," in the language of a writer in *Putnam's Magazine*, about the year 1825, "was so convinced of its value as a wine Grape, that he sent some slips to Mr. Longworth, with a letter, saying, 'I have done my country a greater service by introducing this Grape, I think, to public notice, than I would have done if I had paid off the national debt.'" It is well known, after this, that Mr. Longworth worked with the most patient perseverance for thirty years with this Grape. What wonderful results followed his success! How much longer would they have had to wait in Ohio, or any of those western States, for a movement of this kind had it not been for him? If the manufacturing of wine is a blessing to mankind either in enjoyment, use, or profit, they had in those States much to thank him for. Time will prove whether wine is a blessing. A Mr. Gibbs has the credit of bringing to notice the Isabella Grape. It was named after his wife. A great deal could be said about the Ives, Concord, Clinton, Creveling, and Virginia Seedling Grapes which have, since Mr. Longworth's time, taken the lead, particularly the Ives and Concord, with numberless other good native-sprung Grapes. But it is time to close this article. We will merely add that, owing to its great advantages of climate, California is now, with foreign Grapes, going far ahead of all the States named above.

THE Louisville *Courier-Journal* says that the mocking-birds are becoming rarer in Georgia, by reason of their capture by the professional catchers, who sell them in the northern market. A consignment was shipped through Augusta, Ga., a few days ago, containing 150 young mocking-birds not fully fledged.



Rod and Gun.

"I GO A-FISHING."

A mountain brook, a shady nook,

A ripple,

A rod and fly—"He's very sly,"

"Be careful!"

A sudden dash, a little splash—

"Don't lose him!"

A turn, a bout, a splendid trout—

"Now! land him!"

Three hungry men, a frying pan

Capacious ;

A crispy brown, no such in town—

Delicious!

—J. H. Hoadley, in the *Independent*.

CAMP LIFE.

There are two essentials at least for making a camping out—wood and water. A few trees, or a forest itself, add greatly to the beauty and comfort of a camp; too many shut out the sun's rays, and keep the ground damp. The camp, of course, should be in close vicinity to water, yet in such a position near a creek or stream as to be secure from a sudden rise to which in the winter all the lesser rivers are liable. One great advantage of a forest, as the redwoods, for example, is being sheltered from our strong summer winds, when it is that season of the year. The tents should be placed, if possible, with their backs to the prevailing winds. We confess that we like to have a good

tent, nice mess-kit, plenty of bedding, whatever it may consist of, whether pine or cedar branches or what not. A man can, when he is young at any rate, manage with a couple of blankets for bed, and an overcoat or doubled blanket for a pillow, and hard tack and bacon for provender, with, of course, a variety of game and fish, some of which he is pretty certain of having if he is in a country fit for hunting or camping out at all. It is no use packing many superfluities, only necessities and comforts. Of course there must be a sufficient quantity of cooking utensils. His stock of provisions should be somewhat varied if possible, including an assortment especially of canned fruit, and perhaps vegetables, because they are very wholesome as well as delicious food.

There should be certain fluids for those with whom change of water disagrees, such as lime and lemon juice, etc.

The return at sunset after a fatiguing hunt with gun or rod is a good dinner or supper, which ever one may call it, about a camp fire, for nights in California are nearly always cool—with songs or stories; free, careless, happy hours, unknown to formal, conventional life, and never vouchsafed to the dull diggers after dimes, are there spent till sleeping time arrives. Nowhere on earth can sleep be so refresh-

ing, so directly, as it were, sent from heaven.

At dawn, a plunge in the pure cold brook gives a pretty sure appetite for breakfast.

There is no perfectibility in human happiness! even camp life is not without its occasional discomforts. Sometimes there is danger from fire at and round the camp from carelessness. When grass is dry it burns like tinder, and if it be long, and there be a brisk wind, the utmost care must be used. Under such circumstances the camp fire should be to the leeward of the camp ground.

There is always arising something or other in surrounding nature, in animal, insect, or vegetable life, or new scenes opened in rambling in the vicinity of camps, to interest their occupants—added to this there is a fascination in a life of perfect freedom from all conventional restraint, and a desire to penetrate and find out something in our excursions that is before unknown to us.

These are some of the mere outlines of such a life—temporary, of course, but on account of its not being common, the more appreciated.

In another paper we shall enter more into the details of preparation for and management of camping out, the above being only a rough and general sketch of a few of its pleasant and tempting features.

FISH IN THE PACIFIC.

An Eastern visitor to our Coast, in writing to the *Baltimore Sun*, from San Francisco, May 16th, gives the following description of the varieties of fish to be taken in the Pacific Ocean:

Caviar is the cured roe of fish. It is a dish much in favor with gourmands. While visiting the salmon fisheries in

Washington Territory, we observed that the roe and the milt are cast away with the heads and tails. The avidity with which all fish seize upon the roe as it drops into the water suggests that we also might find rich and wholesome nutriment in that part.

There are four varieties of salmon. The hawk-bill is the largest. It is not canned because it is rank. The silver salmon is the smallest and most delicate. The entire home consumption is supplied with this kind. The red and yellow salmon average forty pounds. They supply the canneries. Previous to 1877 the price paid to the fishermen was twenty-five cents apiece, without regard to the size. This year a strike advanced the rate to fifty cents. On the Sacramento, in California, the canners pay twenty-five cents, but the fish average fifty per cent. less weight. Chinamen mostly smoke them. They avail of the prohibition which forbids the taking of salmon in certain months. This is the Chinaman's opportunity. He poaches in unfrequented nooks, out of season, and with nets of smaller mesh than the law allows, and he cures all he catches.

Sardines abound in the Bay of San Francisco, and they are put up to resemble European. But the fish are inferior in flavor, and the oil is less palatable. They are larger, and the backbone has to be extracted. When wine circulates, restaurants generally send to the table the counterfeit sardines.

The tender, juicy clams of Puget Sound might be profitably canned. They find favor wherever introduced. They are gathered by Indian women, whose feet serve to track the clams in shallow water at low tide.

Sturgeons are very numerous in all our waters. They run from 100 pounds upward. When not too old, this fish is

tender as salmon, and more juicy. If well cooked and nothing is said, it will usually pass for salmon. It invites enterprise. But there is a very attractive opening in a new section for excellent varieties of fish not known in Eastern markets. It embraces nine hundred miles of coast in Lower California, and a double line of coast in the Gulf of California at least six hundred miles in length. Here fish are unusually numerous and of excellent quality. Here marine cat-fish, eighteen inches long and equal in flavor to Philadelphia, are easily taken with a many-hooked line without bait. They swarm so densely that no hook can miss taking a fish in some part of its body as the hook passes along.

The dolphin is a voracious fish, about the size of a salmon. Its meat is equally dry, otherwise it is esteemed highly for the table.

The Spanish mackerel is two feet long. It is speckled like a trout, and is excellent food. It weighs fifteen pounds.

The barracouta is in great favor with the Mexicans. It is four feet long, and like albicore and bonito, it is caught by trolling.

The bonito is a beautiful fish. It is excellent food. It is three feet long and weighs twenty pounds.

The albicore is equally good and of the same size. It is called the finest table fish when it is cooked soon after being taken.

Turtles are very numerous, and are taken easily along shore. They often weigh over 100 pounds. Their steaks are a luxury.

The abalone is a huge oyster, filling a man's hat in area, but of shallow depth. The Chinese dry them on a large scale for eating. The inner lining of the shell is pearly and iridescent,

and it is in demand for ornamental purposes.

Shrimps are dried by Chinamen, and they find ready sale for thousands of sacks. South America is a great market for shrimps.

Millions of small fish are dried by Chinamen, who prefer them to larger kinds.

The oysters of Lower California are of many varieties, some small and copery, and some of great size; and although not tender, they are juicy and well flavored. When transplanted northward they become tender and maintain their size. Rock oysters are very plenty. This variety bores into soft sand-rock between tides. They are easily taken by experts, who excavate them with proper tools. Rock oysters are superior for the table, and yet they have not been canned. Herring have not attracted attention, but Chinamen dry them. They also dry cuttlefish, including their spreading arms. In the North Pacific are excellent codfish, and though very rare, a species of shad has been found. Fine eels are not found here, but a species of conger abounds which is four feet long, and it is very good eating.

Next year our fishermen expect to take considerable Eastern shad, for license will then be free to all. Sharks, porpoises, and sea dogs are taken for oil, and almost every year a few whales are stranded or captured along the southern shores of California.

FISH AND FISHING ON THE PLAINS OF THE GREAT WEST.

There is scarcely a stream on these extensive lands which will not furnish fair sport to one not so enamored of game fish as to disdain any that will not rise to a "fly." Many of the streams

which take their rise in the gorges of the first great plain are filled with trout near to their heads. These disappear as soon as the streams fairly reach the second plain, their place being filled by other and more common fish. The Purga, a tributary of the Arkansas, and the Muddy, a tributary of the Green River, are notable examples of this.

There are said to be trout in some of the streams which take their rise in the second plain, as the Bijou and some of the tributaries of the Republican. This is not well authenticated, and is doubtful. It is a most curious fact, well known to the inhabitants of the plains, that there is not a trout in any tributary of the North Platte River, while every tributary of the South Platte in the mountains furnishes an abundance of this noble fish.

The head-waters of the Cache-de-Poudre and Laramie are in many places but a few yards apart, rising on different slopes of the same mountain. One set of tributaries is full of trout; the other has not one. The same peculiarity occurs in many places—for example, in the rim of mountains which separates the North and Middle Parks, and the range separating the waters of the Papo-agie and the North Platte. North, south, and west it is the same; no single tributary of the thousands that finally find their way to the North Platte has trout.

From the fact that the headwaters of these tributaries are so pure, and that they rise in the same strata and under precisely the same circumstances as the trout streams, it was for a long time supposed that there was something injurious in the main streams of the North Platte preventing the trout from passing up.

However pure the headwaters of these streams, their impurity lower down has

a most decided effect in keeping trout from those heads.

The “speckled” or brook trout of the West, though not the same fish, is very like his brother of the Eastern States—so like, indeed, that many sportsmen insist that they are identical. [These sportsmen could not have examined the two species closely; if they had, they could not have failed to have observed the difference—the Western trout having a red line on both sides from the gills to the tail, and no red specks.—Ed.] The Western fish grows to much greater size; the spots are not so brilliant; and the back and sides, just in front of the tail, are covered with small, black marks, or “hatching,” as if made with the point of a pen. It takes the fly well, but not so greedily as the Eastern fish. The reason is, that they are from early spring gorged with food from the myriads of young grasshoppers which fall into the stream before getting their wings. We have seen the whole bottom of a small stream literally covered with grasshoppers for miles. Later in the season this supply becomes less plentiful, and the fish bite better. On an August morning, before breakfast, we once took from some beaver dams on the heads of the Muddy 116 trout from four ounces to half a pound in weight. We used three “flies,” and several times took three fish at a single cast.

The best months for trout fishing on the first plain, or in the Rocky Mountains, are August and September, though good sport can be had in July and October. In every section of country the “gamest” found is invariably trout. Thus, in some portions of the Southern States the trout is a black perch [or bass.—Ed.] In Texas and in the Indian Territory, as far north as the Canadian, the “trout” is a magnificent

bass, very like the striped sea bass in appearance. His usual maximum weight is from three to six pounds, although we have taken a ten-pounder from the Medina River of Texas, and have seen a glorious fellow which weighed thirteen pounds taken from the Guadalupe River. [These fish here spoken of, of course, are not really trout, but of the perch family, alias bass.—Ed.]

They are very game, and the smaller take a gaudy "fly" readily. The "big fellows" can only be seduced by live bait. In the Rio Azul, of Western New Mexico, and in many other pure streams where the real fish or trout does not exist, the trout is a "dace." In size from a mere minnow to half a pound; he is very "game," taking the "fly" as greedily and as well as any trout.

In almost all the plains' streams is found a fish of the herring family, and most generally called the "white fish." It has large, coarse, white scales, is very thin and flat for its length and depth, is quite bony, and not very delicate food. It is, however, exceedingly voracious, seizes any kind of bait with tremendous vigor, and makes a most interesting fight, especially as his mouth being bony and easily torn, he must be handled delicately. His maximum weight is about three pounds.

In Walnut Creek, a tributary of Arkansas River, we have taken a fish which we have never seen elsewhere. We call it a "white bass." It is almost the exact counterpart of the black bass in size, shape, and manner of biting, but it is pure white, and has large staring eyes.

In the purer streams of the plains is found a beautiful species of cat-fish, called in some parts (at Philadelphia, for instance), the "lady" cat, and in others (as in the Ohio River), the "chan-

nel" cat. Its maximum weight is about three pounds. The spines on the pectoral fins are unusually developed, and inflict for a short time a most painful wound. [The best way is to suck the blood out of the wound as soon as possible.—Ed.] The body is long and tapering, covered at irregular intervals with small black spots, like trout; its head is narrow, and mouth very small for a cat-fish; it has few bones, and is most delicate and delicious food. The best bait is a small piece of the white fish before mentioned. Unlike other cats, it is very dilatory in its biting, nibbling a long time before taking a good hold. It is very strong and active, and, when hooked, makes almost as good a fight as a bass or trout of equal weight. It is the trout of cat-fish.

The blue cat is also common in all these streams, attaining sometimes a weight of fifteen to twenty-five pounds. These large fish are coarse, but the smaller are fine eating. No special skill is required for taking them, as they swallow the bait and make off at once. A large hook and a strong line are indispensable, however, as they pull like oxen.

In the deep, sluggish streams of the lower third plain is found the great mud cat of the Mississippi. They attain an enormous size, and, to our thinking, are unfit for food, being very coarse, and tasting of mud. At Fort Larned, in 1871, several were taken in a seine by some of the soldiers. One of these weighed fifty-four pounds, and an ordinary striped-head fresh-water turtle, eight inches long, was found in his maw.

Streams whose beds contain no running water, but in which there are large and deep permanent pools, even ponds, and lakelets which have no ap-

parent outlet, are frequently crowded with fish. These are usually sun-fish or perch, cat-fish, suckers, and chub.

It is his own fault if the traveler does not have good sport and all the "brain food" he requires from the streams on the plains.

BUFFALO HUNTING.

Col. Dodge in his book (by the way, an interesting one for sportsmen), lately published—"The Plains of the Great West"—(at Roman's), thus describes hunting the buffalo on horseback:

"This, to a novice, is full of excitement. A buffalo can run only about two-thirds as fast as a good horse; but what he lacks in speed he makes up in bottom or endurance, in tenacity of purpose, and in most extraordinary vitality. A herd will stand staring at an approaching horseman until he is within about 300 yards. It will then begin to move off slowly, and, when it is within about 250 yards, it will probably break into a gallop. This is the sportsman's moment. A good horse ridden by a man who knows his business will be among them before they have gone 200 yards, to shoot and slaughter at his pleasure. A poor horse, or careless rider, and the hunter will find to his sorrow that 'a stern chase is a long chase.' If a herd is not overtaken in 500 or 600 yards the chase had better be abandoned, if any regard is to be had for the horse. The difficulty in this hunting is that the herd is enveloped in a cloud of dust, which prevents very careful aim; the explosion of the pistol creates a turmoil, confusion, and change of places among the flying animals, rendering it almost impossible to shoot at any undivided buffalo more than once; and their vitality is so great that it is an exceedingly rare exception when one is brought down by a single

shot. The danger is not so much for the buffalo, which rarely makes an effort to injure his pursuer, as from the fact that neither man nor horse can see the ground, which may be rough and broken, or perforated with prairie dog or gopher holes. This danger is so imminent that a man who runs into a herd may be said to take his life in his hand. I have never known a man hurt by a buffalo in such a chase. I have known of at least six killed, and a great many more or less injured, some very severely, by their horses falling with them. The knowledge of the danger, the rush of the horse, the thundering tread of the rushing brutes, the turmoil, the dust, the uncertainty, and, above all, the near proximity and ferocious aspect of the lumbering throng, furnish excitement enough to set wild the man who is new to it. There is, however, a sameness about it which soon palls, and an old buffalo hunter rarely runs buffalo. It is very good for an occasional 'flyer,' but frequent repetition is like eating quail on toast every day for a month—monotonous. However ardent the sportsman, however ardent for this especial sport while new to it, two or three seasons will dull the edge of the keenest appetite. The running is very different under different circumstances. A single buffalo offers very little sport even to an enthusiastic novice. He is generally an old fellow whom solitary life has rendered self-reliant. He has little disposition to run from any enemy; and, when he does start, he runs so slowly and wastes so much time in 'gibing and filling' to watch his pursuer, that he is generally a prey so easy that, after the killing, the murderer's conscience smites him, and his self-respect is gone. 'I'd as soon shoot an ox,' has often been the report, in a lachrymose, self-

abashed tone, of a beginner whom I had sent off in a fury of excitement after a solitary old bull. The pursuit of small herds of bulls is equally unsatisfactory. A race after a small herd of twenty or thirty cows and six-months' calves gives to the hunter a much more ample compensation for his time and trouble. When from three to six months old the calves run like the wind; and to dash into such a herd, single out a calf, pursue and bring it to bay, is a feat worthy of record for the novice. This selection of the animal is the beauty and perfection of buffalo hunting. On account of the confusion of numbers and the dust, it can scarcely be done in a large herd, except by first splitting it up into small herds. This is much more easy than would appear. When a hunter rushes into a large herd, the buffalo on each side of his horse push from him laterally. As he gets further into it the buffalo passed do not close in his rear, but being now able to see him more clearly, press farther and farther away. The consequence is that the hunter finds himself riding in a Y, the point of which is only a little in advance of his horse's head. By going completely through the herd it is not only split, but the leading buffalo on each side, now clearly seeing the position of the foe, immediately diverge from him, and consequently from each other. The herd is now two herds, which run off in different directions. Pursuing one of these it is split again and again, until the hunter is enabled to select his animal from the diminished numbers. All this requires an excellent horse, a cool and skillful rider, and, what is difficult to find on the plains, good ground and plenty of it. Among steep ravines or very broken ground the buffalo can travel better than the best horse.

"Forty years ago the buffalo ranged from the plains of Texas to beyond the British line; from the Missouri and Upper Mississippi to the eastern slopes of the Rocky Mountains. Every portion of this immense area was either the permanent home of great numbers of buffalo, or might be expected to have each year one or more visits from migratory thousands."

THE IRISH WATER SPANIEL.

In Ireland two breeds of this dog are known. At the present time the McCarthy strain may be considered to be the best type of this dog. It has been imported into England in considerable numbers, but not to such an extent as to become common. These spaniels if properly trained are said to be the most tractable and obedient of dogs, and possess in a marked degree the invaluable qualities of never giving in. They are the cleverest and most companionable of all.

A CURIOSITY.—Yesterday a great curiosity was placed on our table—a deer's heart containing the flint barb of an arrow. Last Sunday Mr. E. Sharp, of Arcata, was out on Boynton's Prairie on a deer hunt. He saw a large five-point buck, and brought it down with his rifle. Taking off the hide and securing the heart and other rare bits, he started home. On arriving there, Mrs. Sharp boiled the heart, and when the meal was ready placed it on the table. In attempting to cut the heart, the knife struck against something hard. The lady split the heart open, and in the fleshy part the flint barb of an arrow was found. It must have been there a long time, as the flesh was calloused all around it, and the scar, where the barb entered, is

plain to be seen. This is quite a curiosity, as only a few such instances are known to be on record. — *Humboldt Times*.

Selected Articles.

TO SUMMER.

Summer, summer, lovely summer,

List, O list to what I say ;

Is thy reign so quickly ended ?

Canst thou, then, no longer stay ?

Autumn cometh, crowned with glory ;

What is that, I pray, to me ?

All my soul the dearest loveth,

Summer, is entwined with thee.

'Mid thy green leaves' shimmering glory,

Waving in the balmy air,

Hope peers forth, with smile entrancing,

Tells me life is passing fair.

And the roses' bloomy petals

Whisper softly in mine ear

Breezy poems, sweet romances,

Tender songs I love to hear.

Velvet pansies, nodding near me,

Tell of happy, golden hours,

And some useful, heaven-taught lesson

Do I learn from all the flowers.

Waving ferns, by brooklets springing,

Perfumed lilies, fair of face,

Whisper low of modest virtue,

Purity, and joy, and grace.

With the spring my fond hopes budded,

And in thy rich loveliness

Have they grown, and bloomed, and blossomed

Into ripest perfectness.

And when autumn leaves are faded,

And the winds of winter blow,

Shall they, like thy peaceful beauty,

Hidden lie beneath the snow ?

Summer, summer, lovely summer,

If thy parting hour is near,

Leave me peace, and love, and blessings,

Guardian angel, for the year.

Summer, may thy memory linger

In my heart forevermore,

And, the dreary winter ended,

May I welcome thee once more.

THE PAPER CACTUS.

The natural habitat of the order is comprised in the region west of the Rocky Mountains and the Cordilleras of America, and the numerous species abound chiefly in Mexico, Oregon, and the great desert basin of Southern California. Their regular and grotesque shapes, and the beauty of their flowers, make their appearance noticeable, and fix their image in the popular mind. Hence, more generally than other plants their peculiarities are understood. Most are aware that they are usually leafless; that they present their fleshy and succulent stems, which generally have deep channels and many joints, and are armed with spines and bristles, in a great variety of forms, from that of an egg to a lofty fluted column; that they vary in stature from creeping stems to angular ascending trunks; and that their flowers, which are much increased in size and brilliancy by cultivation in gardens and greenhouses, range in color from pure white to rich scarlet and purple. But their distinguishing peculiarity, often illustrated and deserving the fullest notice, is their power of enduring long-continued drought. This feature, which has caused them to be compared to the camel of the desert, is an interesting example of the adaptation of plants and animals to their surroundings. The Cactus and its kindred grow in hot, dry, and rocky places, where the fiercest beams of a tropical sun pour on them for months. During the wet season of the year they fill themselves with nourishment and grow rapidly. At this period they become literally gorged with food.

The largest and most remarkable species in this family is the Giant Cactus of California, a tall, upright, regular cylinder, sometimes throwing out

branches, which at a short distance from the trunk turn and grow parallel with it. The old plants often attain a height of sixty feet. Similar is the Monument Cactus of Arizona, a tall shaft over thirty feet high, with arms branching out on either side; more generally a simple obelisk covered with thorns which are three or four inches long.

While these prominent types may illustrate the divergence of different varieties, it is only from the description of their presence in particular districts that an idea can be formed of the visual effect produced by the luxuriant abundance of these bizarre shapes and brilliant flowers. The spectators of such scenes, where the Cactus makes the wilderness blossom like the rose, report that the sight of the rich growth and the iris hues, rivaling the rainbow, suggested such glimpses of fairy land as the "Midsummer Night's Dream" discloses. Thus in 1868 the troops of the lamented General Custer, having set forth on an expedition against the Indians, entered the valley of the Platte and came upon the Prickly Pear country, also called the Cactus country. As far as the eye could reach the plains seemed as if covered with a most gorgeously colored tapestry carpet of brilliant crimson and yellow. Mile after mile the column marched through this strange and beautiful scene, and the two days' tramp would have been thoroughly enjoyable if the soldiers had not been pricked at almost every step by the sharp thorns, and thus made to suffer tortures worthy of a procession of penitential monks.

The varieties of Cactus which abound there, besides the pumpkin-like Turk's head and the Prickly Pear, with its beautiful crimson flowers, is the Cholla, with its terrible barbed thorns; the

Mescal, with its tall flower stalk; the Spanish Bayonet, with a sheaf of delicate creamy blossoms; and the tall Cactus, looking as if covered with veins of delicate network. The most curious of all is a strange modification of the Giant Cactus. It resembles a bundle of fishpoles, diverging from a common root; grows twenty or thirty feet high, has no branches, but small, green, leaf-like expansions and superb crimson flowers that can be seen for a long distance. There is no sign of water in these parched districts, yet all around are green plants, bright flowers, and abundant vegetable growth.

But neither in the valley of the Platte, the wilds of Arizona, or the heart of the dreary California desert, does the Cactus flourish in such glory as in less barren and more tropical regions, like the plains of Central America, or the pampas of Venezuela. For instance, near the capital of Honduras, between the river forest-fringes and the isles of verdure, are broad, undulating savannas. These are carpeted with grass, and studded here and there with numerous kinds of Cactus. Some of the palmated species are of tree-like proportions, and rise to the height of thirty feet. Their broad joints are silvered over with the silky habiliments of the wild cochineal. Another variety rises in fluted stems, which in the evening light look like the columns of ruined temples. Other humbler varieties cover the ground, spherical and spinated. They warn against incautious tread, yet radiate from their grooved sides flowers of exquisite shapes and delicate colors. Others again, lavish of contrasting forms, trail like serpents over the ground and twine themselves in knotted coils around fallen trunks and among the crevices of barren rocks.

ORANGE CULTURE.

[The following from Richard Heimann, of Anaheim, to Mr. Kohler, here, will interest many of our readers who have already put out Orange trees or contemplate doing so.—Ed.]

DEAR SIR:—Your letter came duly to hand. I would again repeat that you should constantly impress upon your friends the fact that the best time to transplant Orange and Lemon trees has only just arrived. In Los Angeles County, with a warmer climate than Napa County, more trees are transplanted in May, June, and July than at other seasons of the year; and all who have tested the matter will indorse my statement, that less injury is done to these varieties when the ground is thoroughly warmed up than when it is cold and chilly, as during the winter months.

There is only one question to consider, and that is no serious one, unless a great number of trees are to be set out—the water question. Everyone planting out Orange trees should be able and ready to water them often and plentifully. Provided there is sufficient drainage to your land, there is no danger of giving the trees too much water. On sandy soil, or wherever the land has a gravelly subsoil, you may flood the land half of the year without injury to the Orange trees. But whenever a few trees only are to be attended to, throw up a bank in a circle, say three feet in diameter, around the tree, and give each two or three buckets full of water weekly or at least two weekly during the summer of the first year, and afterwards slightly rake up the ground so as to keep it from baking and breaking up. In subsequent years it will of course require less and less water.

I can not see any reason why you should not be able to freely sell Orange and Lemon trees in your neighborhood. The climate is well adapted to their culture, and there can certainly be no prettier and more ornamental trees imagined than they are; and while at first slow growers, they are, on the whole, as easily raised and cultivated as any tree I know of.

I am very glad that I took the time to visit you, and I confess that I am perfectly delighted with your country. Nature has done so much for it and has so freely bestowed its own charms upon your hills and valleys that there really remains but little for man to do to make up a perfect paradise. And what could add more to the beauty of your homes than our Orange trees scattered among your Oak and Pine groves?

Again I would say: Go ahead and plant—the season is by no means far advanced. I notice that, for a certain consideration, you offer to guarantee the trees bought of you to live, or not to charge for them. For my part, I would much rather assume such a warranty now than have assumed it a few months ago. You have also a number of trees growing in boxes and barrels, which can be removed without absolutely any danger, as you can plant them out with earth and all—not breaking a root or fibre even, and I think you should draw public attention to them.

The beginning is of course always hard, and from what I perceived during my short stay in your town, it seemed to me that your people are only waking up to a desire to beautify their homes. With some very notable exceptions, they have heretofore made only weak and unsystematic efforts to add to the natural beauties of their places by their own labor. But the taste for and de-

light in gardening is bound to grow upon everybody in the same proportion as it is indulged in. Particularly the Orange culture is possessed of a certain fascination sure to captivate all those engaging in it, and I am confident that before another two years have passed there will not be a home or garden in St. Helena without its share of Orange trees.

Hoping you all the success you so richly deserve, I remain

Yours truly, R. HEIMANN.

CALIFORNIA FRUITS.

Two weeks ago the *Prairie Farmer* gave some account of Orange culture in California, and noticed a specimen of the Orange tribe weighing four and a half pounds. This week, Mr. A. Severt, a well known lake captain of Chicago, now just returned from San Diego, came into the office with the veritable Orange encased in the net in which it grew. With this he brought a collection of Lemons, Limes, and Almonds. The Lemons were of three varieties, Malaga, Geneva, and the small Sicily variety, the latter exceedingly thin skinned and of pure flavor, the skin being devoid of the acidity usually found. The mammoth Orange, of the variety known as Pumalo in California, and raised by Mrs. Brewster, of San Diego Valley, measured $23\frac{3}{4}$ by $24\frac{3}{4}$ inches in circumference, and weighed $4\frac{1}{2}$ pounds. The Limes were from a tree from which were taken 3,500 fruits as the last crop. These Limes and Almonds were raised without irrigation. We used to raise Pears suspended in a net to keep them from dropping from the tree by their weight; but California is the only country we know, where the same use is made of nets for suspending Oranges.—*Prairie Farmer*.

GARDENING IN THE TULE.

The market gardens of the tule lands bordering the San Joaquin River, both above and below Stockton, are rapidly coming into formidable competition with the gardens of the Santa Clara Valley for the trade of supplying the San Francisco markets. They have every advantage over the Santa Clara and Alameda gardens in the richness of soil, the ease of irrigation, and the forwardness of the season, while our cheap river transportation allows the garden truck to be taken to market quite as cheaply as from other gardens nearer by. The advantage of long established reputation with the Santa Clara gardens will be overcome in time and before many years the dealers in San Francisco will look to the San Joaquin Valley for their earliest vegetables and small fruits. In this climate Blackberries, Strawberries, Raspberries, Currants, and all fruits of that character ripen from two to four weeks earlier than they do around the bay. The profits of tule gardening seem enormous when one hears of the almost fabulous productiveness of this land. For instance, Joseph Hale, whose ranch is on Roberts Island, bordering the river, but a few miles above Stockton, informs us that last year he sold \$130 worth of String Beans from one-eighth of an acre of ground. Another piece of ground containing a few acres was sought for by some parties who desired to rent it, and offered to pay \$40 an acre for a year's rent. He refused, however, to rent the land for that sum, and put it into Onions, Potatoes, etc. From $1\frac{1}{2}$ acres of Onions he gathered 440 sacks, weighing 27 tons. Some of these sold for \$3 a sack, some for \$1.50, and some for less. The whole netted about \$700, which was considerably

more profitable than to rent his land for \$40 an acre. He had in all 25 acres of Onions, Beans, and Potatoes last year. The levee around the island had not been completed when the flood came, covering all his land but about ten acres of Onions. From these he sold \$2,200 worth of Onions, netting an average of \$220 an acre. This year he has dug and sold an acre of new Potatoes, which brought him \$85, and the land has been replanted to Sweet Potatoes. From the 11th to the 31st of last month he sold \$237 worth of "garden truck," and one could no more tell where it came from than he could tell if a few roses had been picked from a full rose bush. Three years ago his neighbor, Mr. Hureo, sold \$1,800 worth of Onions from four acres of ground, and the next year, from the same piece, he sold \$2,000 worth. On the Sardine ranch, below Mr. Hale's, there was raised and sold last year \$900 worth of String Beans from two acres of ground. These tempting figures are enough to make any one wish he owned a little farm in the tules.—*Stockton Independent.*

THE HEATED TERM AND VEGETATION.

The recent heated term lasted seven days. The highest readings of the thermometer, we believe, were 113 degrees at a few points in the interior. In this city the mercury ranged for a considerable time above ninety degrees, it having been hotter, with perhaps one exception, than for many previous years. People sought the shadow of buildings, the sunny side of streets was deserted by pedestrians, and the asphaltum walks yielded like putty under the foot. It is evident that if weather of this kind were to continue all summer, the asphaltum walks would be at a great discount.

In the country the damage has been considerable. One fruit-grower in Alameda County lost fifty tons of Currants, the fruit having been cooked so as to make it wholly unfit for market. Other fruit-growers lost proportionate quantities. In short, the Currant crop, which is nearly all produced for market in Alameda County, has been ruined, to the great regret of housekeepers who have come to regard this as one of the best fruits of the season. As for the Cherry crop, while it was not so greatly damaged by the heat, a considerable part of it having been gathered, it was a poor crop from the start, and there is not much of it left after the heated term. We hear of several large Cherry orchards where the lessees have heretofore sold from one thousand to three thousand dollars' worth of Cherries in a season. This year the entire crop will hardly bring as many hundred dollars. What is worse, the buds for next year are not promising. The heat in many instances has burned the buds past recovery. An experienced fruit-grower thinks the Cherry crop next year will be a poor one on this account.

The destruction to vegetation was very great. In places where the mercury did not range much above 98 degrees, the heat and the north wind denuded many trees of one-third of their foliage. Gardeners and others in the suburban towns have been busy in raking up leaves, as if it were autumn instead of the fresh and leafy month of June. At no time during the last fifteen years has the crop of Roses been so utterly used up as during the last ten days. One may walk through extensive grounds now without finding a perfect Rose. Not so many are seen now in the best kept grounds as might be seen in December. The mildew

has been very destructive; then came an army of parasites (aphides), then the north wind, and the heat put on the finishing touches. Pinks, which are the glory of midsummer, were dried up in bunches, with hardly more freshness left than sheafs of barley in the open field. In some places where the mercury went up to 100 degrees, Apples and Pears were partially cooked on the trees, and to this extent were spoiled as a marketable crop. The Grape crop, so far as we can learn, has suffered no injury. It is little affected by heat, north wind, or drought. The first of the new crop is already in the market, and selling at retail for fifty cents a pound. Wine-makers concur in the opinion that the crop will be a very large one this year, and of superior quality for wine-making purposes.—*Bulletin.*

Editorial Portfolio.

RIPENESS AND PRESERVATION OF FRUIT.

It is well known to those acquainted with the growth of Apples that there is a time in the life of fruit when its growth is completed, when it will receive nothing further from the tree. It is then, it may be said, tree ripe. Soon after it reaches that stage the after ripening begins in a chemical change through which the starch, so abundant in green fruit, is transformed into sugar. When the transformation is complete the fruit is in the best condition for use. Almost immediately after, however, putrefaction sets in, first dissipating the volatile aroma, and destroying all delicacy of flavor, finally converting the sugar into an unwholesome acid, and consuming the tissues of the fruit. A low temperature and a dry atmosphere may sometimes retard this

change, yet its progress is so easy and rapid, that efforts to preserve the fruit after it has become ripe are of little avail. But the progress of the first change may be so delayed as to require several months for its accomplishment. It is only necessary for this purpose to take the fruit from the tree at the moment of its maturity, and keep it in a low even temperature and dry atmosphere, secluded from light. In many of our Apple growing regions fruit-houses are constructed where these conditions are almost secured to perfection—in which, for instance, the thermometer does not rise above 34° for months together, and fruit kept in them barely ripens in time for the late spring market. The fruit-producing resources of California are enormous. There are no less than sixty-seven good varieties of Apples, and Pears are equally numerous in the United States, but of course this coast at present has a limited variety. Nothing can be finer, taking size and quality together, than California varieties of Pears, and they are so mellow, luscious, and—well, we may take any other adjective we like—descriptive of perfection in this one of the most delicious and grateful of all fruits. Of Peaches, too, we have a pretty good and increasing variety ripening in succession from the Early May to the Late Cling, from early in June to November. All these kinds of fruit are now being conveyed, as fresh beef is, in the compartments of cars to the East and steamers to Europe, properly refrigerated.

WORK FOR THE MONTH.

The almost unprecedented hot weather which prevailed in this city and throughout the State from the 7th to the 12th of last month (June), had a

disastrous effect on many fruits, especially Currants and Cherries, and there were lost many thousand dollars from these fruits being almost literally cooked on the trees and bushes, and even in some well shaded places they were sadly deteriorated. Many of our flowers, such as Hydrangeas, Geraniums, Daisies, with many others, were much withered and injured by the intensely hot rays of the sun. According to the record of Thomas Tennent, of San Francisco, who, no doubt, is very accurate in his notes, the thermometer on the 9th of June stood at noon 95°. Very few heated terms last in this city more than three days, but the spell of last month extended to six days, while one hot spell in 1859 is said to have lasted twelve days all over the State. For three days out of the six in our city, the thermometer marked 92° at 1:30 P. M. There was especial suffering from the great heat in the southern portion of the State, which had been already parched up by the very severe drought of the winter and spring.

We are glad to find that works of irrigation have lately much occupied the time and attention of our farming people, wherever necessity has demanded it, and where it is practicable. But very few horticulturists, too, even in the most favorable localities, can do without irrigation, and it is evident that a reasonable and judicious application of water is very beneficial in most cases. Old and well-established orchards and vineyards may yield fruits that present all the good qualities which are characteristic of, and what we expect of them, without irrigation, as their roots have penetrated the soil to a depth where some moisture is always found; nevertheless, we are of opinion that the application of a good soaking once or twice during the summer sea-

son will, by invigorating the trees and vines, improve the flavor, color, and size of the fruit. We have observed trees and vines, which, owing to a want of moisture, have ceased to develop new growth, and have hastened the ripening of fruit; such fruit, however, can not be very wholesome, nor is it calculated to satisfy our reasonable expectations. We would, therefore, insist upon irrigation wherever the necessary facilities are available. In many situations, particularly along the foothills of the Sierra and in the more northern portions of the coast, where fruits of all kinds ripen later, irrigation is more desirable, and should be attended to during the month of July, without fail. Besides supplying the required moisture, irrigation is also a good fertilizer. But the process of irrigation does not cease with the application of water. Within a day or two after irrigating, the soil should be worked with a hoe, to prevent it from baking and forming a hard crust, which is very injurious in all cases. If you have any straw, litter, or evergreen branches, etc., close at hand, it will be well to throw some of them over the newly worked ground, in order to return the moisture which is apt to evaporate now more freely without this precaution and mulching.

In young orchards and vineyards irrigation is still more desirable. Frequently we have seen young trees and vines perishing from want of moisture, and if some of them do keep alive during the first or second year after transplanting, their miserable existence shows no vigor or growth. On the other hand, trees which have been irrigated several times during the summer months, have made a healthy and vigorous growth, promising to yield a good crop within three or four years

from the time of planting. Thus, several years may be gained by irrigating in this way judiciously.

Most of our ornamental evergreens require some water during the first summer after transplanting, unless it has been done very early in the autumn, and with proper care; but even then an occasional watering, say once a month during the early summer, is highly beneficial, and advances the growth of the trees in a remarkable degree.

Pines, Cypressess, Cedars—in fact, most of the coniferous trees—may be transplanted with safety in the fall, and will thrive without irrigation if the ground has been well prepared, and if they have been mulched properly; but an occasional soaking helps these also amazingly in promoting new growth. After the first year they will do without irrigation.

Although we have seen a few of the Australian Acacias grown up to large and fine trees without irrigation, we would treat them to an occasional watering once or twice at least during the summer, for we have seen five or six year-old trees perishing for the want of moisture.

The Australian Gum tree (*Eucalyptus globulus*) seems to be able to withstand our dry summers without irrigation. During the first summer after transplanting they should be mulched however, and if two or three good waterings can be given them, it will help them greatly. In all cases, trees which have been transplanted early in the autumn will do best, having an opportunity to fairly establish themselves during the rainy season.

When water can be had, we would advise thoroughly irrigating all ornamental trees which have been transplanted during last winter, at least two

or three times during the summer, and as the most important time when this should be done, we would name the present month of July.

Nursery stock, such as young seedlings, young grafted stock, cuttings, etc., must be irrigated, unless the soil be naturally moist. We would sooner venture to plant a tree or cutting grown by irrigation, than one that has been grown without it, unless, as said above, the soil in which it is growing is naturally damp.

There are various ways of irrigating. Underground irrigation is undoubtedly the best, wherever it is feasible, and where the necessary expense can be easily met. It is also the most economical method, as it does not require the ground to be worked over after the watering.

The seeds of some of our herbaceous spring and summer flowers now begin to ripen, and it is always a good operation to save at least as much seed as you may yourself require. The seed of Pansies, Candytuft, Larkspur, Primulas, Cinerarias, Sweet Alyssum, and early flowering Stock, may now be gathered and stored away in an airy, cool room, where mice and rats can be kept out.

If you wish to have Cinerarias in bloom in February, March, and April next, you should sow the seed now.

This is a good time to propagate Pinks, by cuttings and layering, which will make fair plants for the coming winter and spring.

While dust is flying so abundantly and unpleasantly during our summer months, an occasional syringing and sprinkling of all plants, in and out of doors, becomes a necessity. Plants can not thrive well if their foliage is coated with dust, which also gives them an unsightly appearance.

The present month offers a very good opportunity for propagating Azaleas, Rhododendrons, and many other choice flowers, shrubs, and plants, by cuttings. Some of our wise men say that Azaleas and Rhododendrons can not be grown here successfully from cuttings. Our opinion is decidedly at variance with theirs. There is no reason why they should not do as well here as anywhere else, under proper treatment.

If Gladioli are desired in bloom next October and November, they should be planted now. There is yet time to plant Tuberose for late flowering.

Camellias have mostly made their first growth, and buds are forming. Keep them in an airy place and water less. If you continue to keep them in a warm place, and water them freely, they are apt to make a second growth, by which you will lose your buds.

If Mignonette is expected to flower well during next autumn and winter, the seed should be sowed this or next month. Water the soil thoroughly, cover with good old manure, dig over the whole, and then sow your seeds in rows or broadcast; cover up lightly with fine pulverized soil; and if any branches can be spared from some trees or shrubs, the ground may be shaded for a few days, which will help materially.

OUR FRONTISPEICE.

We present our patrons this month with two interesting and happy home scenes, connected with the pleasures of gardening, and the healthful game of croquet on the lawn. We do this, not so much on account of the great merit or costliness of these illustrations, as that of affording us an opportunity to speak (especially to our noviciates in horticulture), of annual and perennial plants. We will state, then, that an-

nuals, of course, as the term denotes, are plants which live but one year, and, consequently, require to be raised from seed annually, although in our almost ever somewhat stimulating though mild climate of California some annuals exceed that time, and even, in some cases, actually become perennials. By a particular mode of culture, too, even in nearly all climes, some of them may be made to live longer than one or even two years. Thus, Mignonette, with some other flowers, will continue to bloom for two or more years, or longer, if not allowed to ripen their seeds. Hardy annuals, or those requiring no protection, are sown where they are to remain in the open borders, from the end of November to the beginning of April. Whether sown in patches or broad masses, whether mixed or separated, must be left to the taste of the sower, guided by his knowledge of the colors of the flowers. These should be well contrasted. Every patch should be properly labeled, which is easily done by having some pine laths, one inch broad, planed smooth, cut into nine-inch lengths, and painted white. On these the name can be written with a lead pencil. Half-hardy annuals, such as require artificial heat while seedlings, are sown in a gentle hot-bed in January or February. The seedlings when an inch or two long, to be transplanted into another gentle hot-bed, or greenhouse, to remain until the beginning of April, then to be transplanted into the borders, and attended like other new annuals. Tender or greenhouse annuals, requiring artificial heat and shelter during nearly their whole growth, are sown easily in January, on a gentle hot-bed, to be transplanted into another, like the half-hardy, and thence into pots, to remain in the greenhouse, for a time, probably, at any

rate. Some of them, if moved into a warm border in April or May, will bloom freely, and even ripen seed. Biennial, from *biennis*, the Latin for of two years' continuance, is a plant which, being produced from seed in one year, perfects its seed and dies during the year following. Biennials may often be made to endure longer if prevented ripening their seeds; and many exotics, biennials in their native climes, are perennials in our stoves, or even in warm and protected places in our climate out of doors. Hardy biennials ripen their seeds early with us, in which case they may be sown as soon as harvested or gathered. Others, ripening their seeds later, must have these reserved from sowing until early in spring. The double varieties of Wall-flowers, Stocks, etc., are propagated by cuttings. Frame biennials require the shelter to some extent of a frame during the early stages of their growth; to be removed thence in April or May to the borders, where they bloom in July or August, and sometimes earlier. We need not say more than that perennials are plants of any kind that live more than two years. As to sowing seeds early in the year, or in general, we will merely observe that ground where seeds are to be sown should be dug and thoroughly pulverized, if in the spring, early in March, or indeed at any time to prepare it for their reception. About the middle of April is here the most proper time for sowing them. At all times let it be done when the earth is tolerably dry, and in pleasant working condition. The only point to which attention need be directed in the operation is to avoid burying them too deeply; as a rule, the larger seeds do not require to be covered with more than an inch and a half of soil, or rather less if it be at all retentive; and if the

smaller kinds are just hid it will be sufficient, observing to break the soil finely, to sow thinly, and to separate and transplant all that may require it as soon as they can be handled.

FLOWER GARDENS AT SAUCELITO OF
WM. H. COLLIE, OF THE FIRM OF
COLLIE & STEWART.

A few days since we crossed the bay to visit Saucelito, one of the most beautiful and romantic suburbs of our great western emporium. This lovely village, so pleasantly sheltered from our strong ocean gales, and so well clothed in fine native trees, shrubs, and flowers, is destined, at no very distant day, to become a favorite locality for numerous handsome villa residences to belong to many of our merchant princes and business men, as well as to the admirers of the quiet seclusion and attractive beauties of nature. Indeed, this feature in this choice spot has been already well commenced. With the influx of inhabitants, the ferry facilities will, of course, correspondingly increase. A large portion of the roads and streets have been surveyed, and are already laid out, with easy and gentle grades, and winding round the hills so as to give opportunities for pleasant access to homes, and drives in their vicinity, although we are sorry to learn that the original width of these roads has been reduced from sixty to thirty feet. We could dilate to a much greater degree on the attractions, in the present and the future, of this most interesting and snugly situated suburb, on the firmness and dry nature of its soil for agreeable travel, and its fertility for the speedy and splendid growth of all vegetation; for its extensive and charming prospects, the comparative mildness of its climate, and the salubrity of its air, but the chief object of our visit to it is to describe the

floral establishment of Wm. H. Collie, of the firm of Collie & Stewart, nurserymen and florists.

These gardens are used as an adjunct to their old nurseries at Lone Mountain. This Saucelito branch, occupying about three acres of ground, the greater part of one acre being under a glass roof, is devoted exclusively to the production of cut flowers and flower seeds. Nothing is sold on these premises, they being conducted in the manner of the workshops of all large manufacturing concerns, only for production, all the material being daily forwarded to and sold at the firm's flower store and office 18 Post Street, in this city. By allowing the employees uninterrupted attention to their labors, so necessary to all business success, this firm has already accumulated a respectable competency, and, indeed, fortune, and are still pursuing their occupation with greater care and assiduity than ever.

In these grounds are collected together the choicest floral gems culled from every known climate and region of the world. The result of forty years' experience in horticulture, twenty years of that time in the climate of California, can be seen in the successful culture of what has been found most difficult in this locality; for instance, the Camellia, the Indian Azalea, the Cape Jessamine, the Poinsettia, and hundreds of other choice plants, are all growing and flourishing here with the health and luxuriance of the common Willow in its native swamp. Ferns, Lycopodiums, Begonias, and Orchids of all the most desirable varieties for floral decorations, succeed here as completely as in their native habitats; which, indeed, have been so closely imitated in their distribution in grottoes, rockeries, and groves, as to almost transport the beholder in imagination

to their native mountains and jungles; while he may here also behold in suitable ponds the snowy *Nymphæa* Lily blossom, and its glossy leaves spread themselves over the pellucid water, with gold fish forming beautiful objects, swimming between the foliage and flowers. The luxuriant vines of the tropics laden with a profusion of gorgeously-hued blossoms, and making heavy the air with their delicious perfume, canopy the sides and top of the houses and trellises.

All these delightful scenes are accomplished at a moderate cost by a judicious adjustment and appropriation of the natural advantages and conveniences which the fortunate selection of this valuable and suitable locality has presented. As an example, the glass roof of these extensive hot and cold houses, following the same grade as the natural slope of the hill-side, admits of every plant, without the use of pots, being placed in the free ground, and still within its proper distance from the glass—a point of absolute necessity for successful cultivation and required results with all greenhouse plants. The springs that issue from the hill-side are allowed to trickle down its rocky surface and accumulate in ponds in the hollows, thereby maintaining a genial moisture in the atmosphere, and accommodating the aquatic plants in the ponds, and ferns, etc., on the rocks, with sufficient moisture.

On these premises the seasons of many flowers can be controlled. Here Bouvardias and Tuberoses can be made to bloom for cut flowers all the year round. Cape Jessamines can not be made to grow in the city, but they can here. The Hawthorns are also a success, the north side of a cold clay bank, partly shaded from the hot summer sun, being chosen for their location.

The same conditions have also suited the Lily of the Valley. One of the advantages of this situation is its dryness in winter, but with plenty of water from springs when needed. Part of the benefits, also, of the hill slope, is that a natural bottom heat can be obtained. The double scarlet Geraniums are now outside, but are placed in houses in the winter for flowers, and are much used for monograms and crests, etc. Labor, the most expensive thing in this State, is much saved on these grounds owing to their many conveniences.

A short distance from this establishment there is a summer garden of one acre used for raising flowers of a particular color, such as the white Scabious, not to be interfered with by those of any other colors, and therefore planted apart, to prevent bees from effecting the mixture.

One important fact has been learned by our florists by experience, viz.: that our climate, soil, etc., are so peculiar, that we can know but little from books on horticulture published elsewhere. We have to acquire our knowledge on this subject almost entirely from our own practice here. Some time in the future, when the number of our population justifies it, a complete work written on California horticulture will be of great value; in the meanwhile we are acquiring daily new information concerning the proper and most profitable management of all plants.

GARDEN OF E. A. UPTON, ESQ.

Having had for several years a knowledge of the zeal, talent, and skill of Mr. Upton, an amateur, in the cultivation of flowers—especially of the *Gladiolus* and *Dahlia*, his favorite families in the floral kingdom, by his kind invitation we paid a visit to a small plot of ground

attached to his residence on Scott Street near Turk. This lot is completely covered with the choicest species and specimens of many kinds of plants and flowers, but those which shone forth in the greatest beauty and lustre were his *Gladioli*, *Dahlias*, *Lilies*, and *Amaryllis*. Of the *Gladiolus* he had cultivated over 90 varieties, *Dahlias* 121, *Pompons* 42, *Lilies* 10, and *Amaryllis* 8. Among his most splendid and handsomely colored *Gladioli*, we observed *Hercules*, the largest known, *Lord Granville*, *Ulysses*, *Eva*, *Velleda*, *Othello*, *Triumphant*, *Isabella*, *Adanson*, *Dr. Lindley*, *Vulcan*, *Flora*, *Lord Byron*, *Mozart*, *Reine Victoria*, etc.; among his choicest, most striking and attractive *Dahlias*, we noticed *Volcaine*, *Mrs. Roberts*, *Queen of Beauties*, *Goddess*, *Flambeau*, *Golden Gem*, *Bride*, *Iris*, *Mrs. Pigott*, *Andrew Dodge*, *Claudia*, *British Triumph*, *Jesse* (crimson-tipped); among the *Lilies*, the finest was the *Tigrinum flore pleno*; among the magnificent *Roses* were *John Hopper*, *Pride of Italy*, *Model of Perfection*, *Marshal Neil*, *Cloth of Gold*, etc.

The name of Upton has been well known since 1869 in our floral exhibitions at the Mechanics' Institute, where he has drawn many prizes and certificates for his brilliant and gorgeous shows of a great variety of *Gladioli*, *Dahlias*, and *Roses*, etc. We trust that as his garden display promises so much at the approaching Mechanics' Fair he will, as usual, largely contribute to its horticultural attractions, by sending the finest specimens of his *Gladioli*, *Dahlias*, *Lilies*, *Roses*, etc.

NEW PLANTS AND SHRUBS.

Dr. Kellogg read a paper before the San Francisco Academy of Sciences on a new genus of shrubs from the coast

of Lower California, dedicated to the collector, the late Dr. J. A. Veatch, *Veatchea fruticosa*. This shrub probably has medical value, as the bark is intensely bitter.

Dr. Kellogg also read a description of a new composite shrub, *Trixis color*, recently collected by Mr. Fisher, near Mazatlan, Mexico; also, a new *Oenothera*, or a species of primrose, *Oenothera rosacaulis*, collected by Mr. J. Muir, in the Sierra Nevada Mountains.

FRUIT CULTIVATION AND REPORT OF FRUIT AND VEGETABLE MARKET.

In many parts of our State ground-squirrels, pocket-gophers, and some other species of rodents are so very destructive to crops that it has for some time been necessary to lessen their great numbers in some way or other. To poison them seems the most effectual method, but some persons have been trying phosphorus, and it has been found quite effectual in killing them, and it is not so expensive as strychnine. A correspondent of the *California Live Stock Journal* gives the following mode :

"A five-gallon oil-can is a good vessel to prepare it in, and one I usually use. I fill the can one-third full of water, and set it on the stove till it comes to a boil; then I take one-half corn-meal and one-half flour, and stir in till I have a stiff mush; then I add two pounds sugar, and carry the can out of doors and let it stand ten minutes to cool; then take a stick of phosphorus in a pair of plyers and plunge it in the mush till the stick has all melted. (Melting it in the mush, instead of in the water, prevents it settling, and takes less poison, and is more thoroughly mixed through the mass. It is quite important that the mush should be con-

siderably below the boiling-point or the phosphorus will take fire). Then add wheat as long as you can stir it. The wheat becomes coated, and when swollen will absorb the water, and you can break it into lumps of a suitable size to use. A piece as large as a walnut is large enough for a squirrel or gopher hole, and should always be put so far into the hole that no domestic animal can get at it.

"It is no reason, because an animal does not die immediately, that it has not been poisoned. I call to mind an instance of poisoning by phosphorus of a child of one of the physicians of San Diego. It in some way got hold of a bunch of matches, and though it seemed to have swallowed but a very little of the compound, it was taken violently ill, and every known remedy was applied and the child partially recovered, and lingered for six months, but finally died from the effects of the poison. I write this to impress upon all who use the drug the necessity of extreme care in its use; for like the 'Mills of the Gods,' it sometimes grinds slow, but nevertheless grinds very sure. In using it to poison gophers, dig down to the main runway, and put in a piece as large as a walnut, and, believe me, you will soon be rid of them. For kangaroo-rats and mice, put it into clumps of bushes, piles of brush or stone, where nothing else can get at it. The opinion prevails that it is liable to take fire after being mixed, and even after being put out, but I have the best of reason for believing it a mistake, having inquired of parties who have used it for fifteen years, and they scout the idea.

"In conclusion, I will say that fifty cents' worth of phosphorus will be more effectual in ridding your fields and orchards of squirrels, than two dollars' worth of strychnine."

With regard to the markets : About the beginning of last month (June) very few changes took place in vegetables since last report, though Cucumbers, Tomatoes, and Okra were cheaper. The market was abundantly supplied with New Potatoes, principally Early Rose, from the Sacramento River, and a choice article could be had at \$2 per 100 lbs., by the single sack. The first Sweet Corn came in June 1st, and was selling at 50c. per dozen.

Howe & Hall received from Newcastle some Strawberries of extraordinary size, grown by C. M. Silver & Son. The variety is of recent introduction in this State, and is appropriately named "Monarch of the West." Fruit quotations showed a general reduction, and Raspberries, Blackberries, Cherries, and Apricots were all cheaper. Over 100 boxes of Briggs' Early Peaches arrived daily and prices drooped. New Apples sold at 50c. per basket, while old were about out of market. Another crop of Tahiti Oranges arrived the first of the month (June). The market was overstocked, and prices were unusually low. Apricots have been very small this season, also Peaches are coming in undersized. We attribute this falling off in size in the majority of these fruits to the overloading of the trees from there having been no frosts to speak of to destroy any portion of their always plentiful blossoms. Consequently the orchards have been allowed to overbear, thinning being very seldom resorted to in California, as indeed it hardly ever is in any part of the Union. Next year the trees will probably show the effects of this overproduction in decreased bearing, although it seems trees here hardly ever become exhausted except from allowing too much wood to grow on them, or from great exhaustion of the soil, or

much neglected cultivation. Among the few Strawberries found in the market besides the common Prolific, we notice occasionally a few boxes of the Chilli, and some of a kind termed the Defiance, a large, fine, conical berry with prominent and rather light colored seeds. It is a large fruit, and appears firm enough for safe carriage, but its color is rather dull.

In the first week in last month (June) Cherries went somewhat into the background, for many other fruits which had commenced coming into market. From the other side of the bay there was a fair accession of Raspberries, and prices, of course, were on the descending scale. Madeline Pears and the Red Astrachan Apples did not remain long on the stalls for want of purchasers. Royal Apricots were more plentiful, also Cherry Plums. The Astrachan Apples were not highly colored at that time, but would improve in that respect. A great deal of the larger kinds of fruit are diminutive in size this year on account of the trees being extra loaded, and the fruit not having, as usual, been thinned. The Wolfskill orchard at Putah Creek, Solano County, produced the first ripe Figs that were sent to this market. Silver & Son, of Newcastle, shipped a species of Strawberry called the "Monarch of the West," which was probably the largest Strawberry that has ever appeared in our city. They were much admired. Their shape is conical, having a bright red blush on one side next the sun, with light green seeds. It is not expected that the crops of Apples, Plums, and some kinds of Pears will be at all heavy this year. That good authority, the *Commercial Herald*, states that "The Peach orchards in the valleys and up in the foothills promise to yield a large crop, and from

present appearances will be of most excellent flavor. Grapes, Bartlett Pears, and Quinces look well in most localities. There will be an abundance of everything, but the market is not likely to be so largely overstocked as it has been some seasons past. There is, therefore, every reason to believe that fruit-growers with less labor will probably realize a larger profit than for any preceding year."

We are indebted to Howe & Hall for the following quotations: Apples—Red Astrachan, 50c. to 75c.; Early Harvest, 30c. to 40c. per basket. Pears—Madeline, 75c. to \$1.25 per box. Cherry Plums, \$1 to \$1.25 per box. Cherries—Choice black, 8c. to 15c. per lb.; common red, 5c. to 8c. Peaches, \$1.50 to \$2.50 per box. Apricots, Royal, \$1 to \$1.25 per box. Strawberries, \$12 to \$17 per chest. Raspberries, 10c. to 20c. per lb. Gooseberries, 8c. to 9c. per lb. Blackberries, 25c. per lb. Currants, \$3.50 to \$4.50 per chest. Oranges, Tahiti, \$10 to \$20 per M; California, \$15 to \$35 per M. Lemons, Sicily, \$10 to \$11 per box; Los Angeles, \$15 to \$22.50 per M. Limes, \$10 to \$15 per M. Bananas, \$2.50 to \$3.50 per bunch. Pine Apples, \$6 to \$8 per doz. Cocoanuts, \$5 per 100. Dried Fruit—Eastern Apples, choice, 10c. per lb.; Peaches, 7c. to 10c. per lb.; Pears, 7c. to 8c. per lb.; Plums, 3c. to 4c.; pitted, 12c. to 13½c.; Prunes, 12½c. to 17c. per lb.; Figs, white, 6c to 8c.; black, 5c. to 7c. per lb.; California Raisins, \$1 to \$2.50 per box. Vegetables—Cabbages, 50c. per ctl.; Cucumbers, 25c. to 50c. per doz.; Asparagus, \$1 25 to \$2 per box; Tomatoes, 60c. to 75c. per bx; Green Corn, 10c. to 15c. per doz.; Summer Squash, 40c. to 75c. per bx.; Rhubarb, 2c. to 3c. per lb.; Green Peas, 1½c. to 2½c. per lb.; String Beans, 2c. to 5c. per lb.; Gar-

lic, 4c. per lb.; Chile Peppers, 37½c. per lb.; Okra, 37½c. per lb.

Oranges, Lemons, and Limes were in good supply. We have had this year several new varieties of this fruit, chiefly from the southern portion of California, in our market. In the Los Angeles Orange Growers' Convention it was stated that the Los Angeles Seedling, whether budded or not, could not be excelled. The seedlings of Los Angeles County were raised from Tahiti seeds, the Oranges of which were of a pale yellow, but in Los Angeles County they are of a dark orange color; hence climate, soil, etc., make the quality of the fruit. The Tahiti Orange or the Mexican Orange from Acapulco or Panama, is the original fruit as nature produces it in its native woods. Both have a much thinner rind than the Los Angeles Oranges, while they are more oval. The Florida Orange is different from the Cuba, that again differs from the Mexican, and so on. The Los Angeles Orange more nearly resembles the Mediterranean. It does not seem likely that the Los Angeles Seedling can be improved upon. President Wilder considers it the best of all when fully ripe, and with a rather thin skin. The Mediterranean Sweet is a very good Orange. It is a fact that a seedling tree is harder, has a longer life, and is a healthier tree than one that is grafted and budded. The general result, however, of the discussion at the Convention appeared to be in favor of budding, although Mr. Rose, a great Orange grower there, was most pronounced against it.

To the list of vegetables Egg Plant and Wax Beans were added on the 8th of June. Strawberries were becoming scarce and dear, but Raspberries arrived more freely, and were a tolerably

good substitute. The Gooseberry crop turned out very short, and few were seen in market up to the above date. It is very doubtful if we shall see this year any of the large and fine English sorts, but it is rather too early for them, as they are never sent in before they are nearly ripe. Apples, Pears, and Peaches were becoming quite plentiful. They sold by the box at \$1.50 to \$2, delivered.

About the middle of last month (June) a great deal of the fruit in market gave unmistakable evidence of the terrible heat in the interior valleys of the State during the previous week. Thousands of dollars have been lost to fruit cultivators in the almost complete roasting which Currants, Gooseberries, and a great many Cherries received during this almost unprecedented heated term in California. Strawberries were scarce and dear, and were also a good deal injured in both quality and appearance by the hot weather. We observed a few lots of the Triomphe de Grand Strawberry which looked well. This sort is very large, said to be prolific, and is sufficiently firm and hard to bear transportation well. It is of irregular form, and of fine bright color, and not so acid as the Prolific, our most common kind. We think it deserves attention from our fruit growers.

The warm weather caused a heavy demand for Lemons, and prices were considerably higher. A few Los Angeles Oranges were still coming in, but the market was chiefly supplied with the Tahiti fruit, the twelfth cargo of which thus far received this season arrived a few days ago. Peaches were received in small quantities every day from the Sacramento River, and would soon be abundant. Apples retailed by the box at \$1.25 to \$1.75.

In vegetables the supply was liberal,

and prices were generally steady, although Cucumbers declined to 50c. per dozen, and Okra and Green Corn were also cheaper. The supply of good Potatoes was moderate, and prices firm; good to choice by the single sack selling at \$1.75 to \$2 per 100 lbs., delivered. The first Watermelons and Cantaloupes were received about this time.

NATURAL CURIOSITIES. — Rev. B. R. Johnson, living on Seminary Street, has a grape vine growing through an apple tree. He bored through the tree two years ago and pulled the vine through, and now the tree has nearly closed on the vine, and the latter is nearly ready to be severed from its parent vine, when grapes will be gathered from an apple tree, if not "thorns of fig trees." Mr. Johnson has also grown on his premises a tree which came from Missouri, around Cape Horn, with his household goods, and was set out where it now stands eighteen years ago. It is now ten inches in diameter a foot from the ground. Another curiosity on his place is a Siberian Crab Apple tree, which has three main branches, held together by three small limbs or ligaments being grafted on the branches from one to the other, like ropes tied on and confining the branches together, so that they would not split down by the force of the wind. These limbs have grown to the branches and form a substantial support, making the tree much firmer than before this surgical operation was performed upon it.—*Napa Register*.

BLACKBERRIES.—Of all fruit conducive to health, we are disposed to concede to the Blackberry the highest place. Thousands of lives, especially of children, might annually be saved by a free use of this fruit during the sum-

mer. It is of the easiest culture, requiring but little attention after the first year or two, and yielding abundant crops for half a century. Set the plants four feet apart in rows, with rows full eight feet apart. This will require about 1,500 plants to the acre. The three leading varieties are the Kittatinny, Lawton, and Wilson's Early. The Kittatinny is the best Blackberry in cultivation. Its extreme hardiness, great bearing qualities, large size and luscious quality make it a favorite wherever grown. It continues in bearing for five or six weeks, or until the earliest varieties of grapes and peaches begin to ripen.

AMERICAN FRUIT IN EUROPE. — Where is this to end? There was a time when we were almost entirely tributary to the Old World for our manufactures and many other articles of domestic use and consumption. Now the order is reversed. We make our own iron and steel rails, build our own iron ships, are independent in the matter of skilled labor, and having in nearly every other respect become self-sustaining, venture abroad to find a market for our surplus wares. We cross the ocean with wheat, flour, cutlery, woollens, cotton fabrics, canned fishes and fowls, fresh beef by the cargo, with the late addition of fruits, in which the trade has grown to gigantic proportions. Since June, of 1876, we have exported \$2,500,000 worth of fruit, as against \$600,000 worth the year before. Dried Apples figure largely in this movement, for which the demand steadily increases—a hint to our farmers who have suffered the fruit of their orchards to fall to the ground and perish because they could find no purchasers at their doors. The fruit-dryer is coming into common use, and there is no longer a reason for

this waste, when a little industry can so easily convert it into a gain.

A WONDERFUL SPECIES OF THE COTTON PLANT.—A cable dispatch from London to one of our daily papers says: A remarkable discovery has been made in Egypt by Signor Giacomo Rossi, Austrian Consular Agent at Alexandria. He has found a new Cotton plant, which is so wonderfully prolific that it may prove a dangerous enemy, the report says, to the American Cotton raising interests. Signor Rossi, in his report of the discovery, says that about two years ago he accidentally came across the new plant on the property of a captain in the Menulia district, who collected the seed and sold it to his neighbors at twelvefold the price obtained for the ordinary kind. The plant has a long stem, and being without branches much space is saved. It bears on an average 50 pods on each bush, while the usual yield of the plant is about 30. A smaller quantity of seed is needed, but the great drawback in Egypt is that it requires much more water, which necessitates the alternating of the crops with grain and vegetables.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING JUNE 30TH, 1877.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 18 Market Street.)

BAROMETER.

Mean height at 9 A. M.	30.07 in.
do 12 M.	30.06
do 3 P. M.	30.06
do 6 P. M.	30.06
Highest point on the 28th at 6 P. M.	30.22
Lowest point on the 7th at 6 P. M.	29.90

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	69°
do 12 M.	75°
do 3 P. M.	74°
do 6 P. M.	69°
Highest point on the 11th at 1 P. M.	99°
Lowest point on the 19th at 6 P. M.	63°

SELF-REGISTERING THERMOMETER.

Mean height during the night	56°
Highest point at sunrise on the 11th	69°
Lowest point at sunrise on the 2d	50°

WINDS.

West on 24 days; east on 4 days; south-west on 2 days.

WEATHER.

Clear all day 13 days; cloudy on 2 days; variable on 15 days.



AQUARIUM AND FLORAL STAND

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. VII.

SAN FRANCISCO, AUGUST, 1877.

No. 8.

NOTES FROM A GREENHOUSE.—NO. 2.

BY CHAS. H. SHINN, AT NILES.

After the very remarkable spell of hot weather some things are dead enough for a funeral; and very many plants have put on a mourning attire of withered leaves and wilted blossoms. This, too, notwithstanding the utmost attention given to shading and watering. Water sprinkled along the paths of a greenhouse, at intervals throughout the day, lowers the temperature very much. Of course it is instant death to water any plant under the hot sun. Wet sacks laid over glass, or above seed boxes are of great service in the struggle. As for me, having the comfort of a greenhouse in view, I beg to state that no more African weather is needed.

Now and then, as the summer passes, a host assails the pets of the garden. Without trumpet they come—hungry, determined, insidious. Poets love to mourn over the “worm i’ the bud,” but what poet ever dared to whisper of the aphid under the leaf, or the brisk black fly hopping on the stem? Yet these be terrors! The worm in the bud is not a dread to even the literary hort-

iculturist; but toward these small pests, whose name is legion, may my hand be merciless! First came the pensive and multitudinous squash-bugs, who belied their name, and encamped around the cucumbers, took possession of the beans, turned the beet leaves into patent sieves, and sent word to their most distant relations. It was hinted that these strangers hated Paris-green, and, sadly be it told, Paris green was sprinkled everywhere, to the ruining of all their plans. Next, the fat aphides appeared in the greenhouse, and began to bunch and lunch under some convenient Cannas. It was cruel, perhaps, but tobacco was burnt over a pan of coals, until the creatures sank in despair and smoke. If it is not nice to have crawling plant-shelves, let whale-oil soap, Paris green, and tobacco be your salvation.

This month there is a whisper of hanging baskets, and I begin to arrange them at leisure. The variety of possible effects is truly wonderful. Your basket may be simple or profuse, modest or gorgeous, subdued or overwhelming. It is a good plan to select the plants you want, take them to the potting bench, and there group them until the general effect is satisfactory.

It is not nice to mingle too many colors or styles of foliage in the same basket. Choose one thing to give the impression, and let the rest be subordinate. Now and then you find a basket in which the art is hidden. It is a bit of nature, full of simplicity. You may span it with your hand, yet there are cool deeps where your fancies wander dreamfully, creeping under fern tracer-ies. Some one planned it in a happy moment, and nature seconded his thought.

To-day I notice how green the spathe of *Richardia maculata alba* has become. It was white with a purplish tinge at the base; but this change, which many flowers undergo, is part of the proof that all the parts of the blossom are merely transformed leaves. Of similar drift is the tendency to produce green leaves in the flower-bud, which some Roses show. I have noticed these among the petals in *Ranunculus*, *Stock*, *Scabiosa*, the wild Bee Larkspur, and the common Cherry.

The fashion of climbers passeth away. A few old favorites, as the Morning Glory, cling, climb, and hold a running council along the window-sill; but of the army tried and cast aside there is a startling list. *Cobæa scandens* is scraggy, limp, and coarse, despite its delicate tendrils and odd, pursy buds. The variegated vines are most of them failures, because generally indistinct in marking. For real use the *Wistarias*, *Clematis*, *Maurandias*, *Passifloras*, and that quaint brown-eyed annual, *Thunbergia*, are among the best of vines, aside from running Roses, which of themselves are a paradise. For a warm greenhouse *Cissus discolor* and *Clerodendron Balfouri* should be tried.

The question of how much water a plant needs is a very critical one. When the soil looks white on the top

soak that pot. When the top looks green and scummy, stir it, and taboo further fluid for a reasonable period. The first rule is: Don't water too often. The second rule is: Don't sprinkle mildly, but wet thoroughly. On these two hinge theory and practice. In the course of time it becomes easy to tell from the color of a plant's leaves whether the water supply is properly regulated. Some plants, as the *Hydrangeas*, can stand almost an unlimited amount. Talking about *Hydrangeas*, a little iron rust will make the flowers come blue.

Seemingly slight things in horticulture vary the results greatly. I have noticed in potting that very much depends upon the amount of pressure given to the soil. Some things require tight potting, laugh at, and enjoy it. Others only want a tap on the bench to settle the earth about the roots. The *Pelargoniums* like close work, and do not bloom well without it. The Ferns and *Mimulus* get very much out of sorts unless they are potted loosely. This is one of the things "no fellow can find out" without experience. In repotting don't wait too long, until the roots are hard. Let them be well matted, but soft, or you will have to use the knife to start a healthy growth. Watch *Fuchsias* especially, unless you want to forego flowers. There is quite a difference in the ease with which various things pot. A stiff and spiny Cactus is a ferocious and often tearful thing to handle, especially when broad-armed. Then your largest pot seems inadequate, and your spiciest language weak.

NEVER let a feeling of loneliness lead you into the company of those who will degrade instead of elevate you.

MORMON LILIES.

BY JOHN MUIR.

Lilies are rare in Utah, so also are their companions, the Ferns and Orchids, chiefly on account of the fiery saltiness of the soil and climate. You may walk the deserts of the Great Basin in the bloom time of the year, all the way across from the snowy Sierra to the snowy Wasatch, and your eyes will be filled with many a gay Malva, and Poppy, and Abronia, and Cactus, but you may not see a single true Lily, and only a very few liliaceous plants of any kind. Not even in the cool, fresh glens of the mountains will you find these favorite flowers, though some of these desert ranges almost rival the Sierra in height. Nevertheless, in the building and planting of this grand territory the Lilies were not forgotten. Far back in the dim geologic ages, when the sediments of the old seas were being gathered and outspread in smooth streets like leaves of a book, and when these sediments became dry land, and were baked and crumbled, and tossed into the sky as mountain ranges; when the lava floods of the Fire Period were being lavishly poured forth from innumerable rifts and craters; when the ice of the Glacial Period was laid like a mantle over every mountain and valley—throughout all these immensely protracted periods, in the throng of these majestic operations, Nature kept her flower children in mind. She considered the Lilies, and while planting the plains with Sage and the hills with Cedar, she has covered at least one mountain with golden Erythroniums and Fritillarias as its crowning glory, as if willing to show what she could do in the Lily line even here.

Looking southward from the south

end of Salt Lake, the two northmost peaks of the Oquirrh range are seen swelling calmly into the cool sky without any marked character, excepting only their snow crowns, and a few small weedy looking patches of Spruce and Fir, the simplicity of their slopes preventing their real loftiness from being appreciated. Gray, sagey plains circle around their bases, and up to a height of a thousand feet or more their sides are tinged with purple, which I afterwards found is produced by a close growth of dwarf oak just coming into leaf. Higher you may detect faint tints of green on a gray ground, from young grasses and sedges. Then the dark pine woods filling glacial hollows, and over all the smooth crown of snow.

While standing at their feet, the other day, shortly after my memorable excursion among the salt waves of the lake, I said, "Now I shall have another baptism. I will bathe in the high sky, among cool wind waves above the snow." From the more southerly of the two peaks a long ridge comes down, bent like a bow, one end in the hot plains, the other in the snow of the summit. After carefully scanning the jagged towers and battlements with which it is roughened, I determined to make it my way, though it presented but a feeble advertisement of its floral wealth. This apparent barrenness, however, made no great objection just then, for I was scarce hoping for flowers, old or new, or even for fine scenery. I wanted in particular to learn what the Oquirrh rocks were made of, what trees composed the curious patches of forest; and, perhaps, more than all, I was animated by a mountaineer's eagerness to get my feet into the snow once more, and my head into the clear sky, after lying dormant all winter at the level of the sea.

But in every walk with Nature one receives far more than they seek. I had not gone more than a mile from Lake Point ere I found the way profusely decked with flowers, mostly composite and purple leguminosæ, a hundred corollas or more to the square yard, with a corresponding abundance of winged blossoms above them, moths and butterflies, the leguminosæ of the insect kingdom. This floweriness is maintained with delightful variety all the way up through rocks and bushes to the snow—Violets, Lilies, Gillias, Oenotheras, Wallflowers, Iresias, Saxifrages, Smilax, and miles of blooming bushes, chiefly Azalea, Honeysuckle, Brier-rose, Buckthorn, and Eriogonum, all meeting and blending in divine accord. Two liliaceous plants in particular, *Erythronium grandiflorum* and *Fritillaria pudica* are marvelously beautiful and abundant. Never before, in all my walks, have I met so glorious a throng of Lilies. The whole mountain side was aglow with them, from a height of 5,500 feet to the very edge of the snow. Although remarkably fragile, both in form and substance, they are endowed with plenty of deep-seated vitality, enabling them to grow in all kinds of places, down in leafy glens, in the lee of wind-beaten ledges, and beneath the brushy tangles of Oak, and Azalea, and prickly Roses everywhere forming the crowning glory of the flowers. If the neighboring mountains are as rich in Lilies, then this may well be called the Lily Range.

After climbing about a thousand feet above the plain I came to a picturesque mass of rock, cropping up through the underbrush on one of the steepest slopes of the mountains. After examining some tufts of grass and Saxifrage that were growing in its fissured surface, I was going to pass it by on the

upper side where the bushes were more open, but a company composed of the two Lilies I have mentioned were blooming on the lower side, and though as yet out of sight, I suddenly changed my mind and went down to meet them, as if attracted by the ring of their bells. They were growing in a small, nest-like opening between the rock and bushes, and both the *Erythronium* and *Fritillaria* were in full flower. These were the first of the species I had seen, and I need not try to tell the joy they made. They are both lowly plants—lowly as Violets—the tallest seldom exceeding six inches in height, so that the most searching winds that sweep the mountains scarce reach low enough to shake their bells.

The *Fritillaria* has five or six linear, obtuse leaves, put on irregularly near the bottom of the stem, which is usually terminated by one large bell-shaped flower; but its more beautiful companion—the *Erythronium*—has two radical leaves only, which are large and oval, and shine like glass. They extend horizontally in opposite directions, and form a beautiful glossy ground, over which the one large down-looking flower is swung from a simple stem; the petals being strongly recurved, like those of *L. superbum*. Occasionally a specimen is met which has from two to five flowers hung in a loose panicle. People sometimes travel far to see curious plants like the carnivorous *Darlingtonia*, the *Fly-catcher*, *Walking-fern*, etc. I hardly know how the little bells I have been describing would be regarded by seekers of this class, but every true flower-lover who comes to consider these Utah Lilies will surely be well rewarded, however long the way.

Pushing on up the rugged slopes, I found many delightful seclusions—

moist nooks at the foot of cliffs, and Lilies in every one of them, not growing close together like Daisies, but well apart, with plenty of room for their bells to swing free and ring. I found hundreds of them in full bloom within two feet of the snow. In winter they withdraw deep beneath the earth, and take shelter in their waxen bulbs, like field mice in their nests; then the snow-flowers fall above them, Lilies over Lilies, until the spring winds blow, and these winter lilies wither in turn, then the hiding Erythroniums and Fritillarias rise again, responsive to the first touches of the sun.

I noticed the tracks of deer in many places among the Lily gardens, and at the height of about 7,000 feet I came upon the fresh trail of a flock of wild sheep, showing that these fine mountaineers still flourish here above the range of Mormon rifles. In the planting of her wild gardens, Nature takes the feet and teeth of her flocks into account, and makes use of them to trim and cultivate, and keep them in perfect order, as the bark and buds of the trees are tended by woodpeckers and linnets. The evergreen woods consist, so far as I observed, of two species, a Spruce and Fir, standing close together, erect and arrowy in a thrifty and compact growth; but they are quite small, say from six to twelve or fourteen inches in diameter, and about forty feet in height. Among their giant relatives of the Sierra the very largest would seem mere saplings. A considerable portion of the south side of the mountain is planted with a species of Aspen, called quaking asp by the wood-choppers. It seems to be quite abundant on many of the eastern mountains of the basin, and forms a marked feature of their upper forests.

Wading up the curves of the summit

was rather toilsome, for the snow, which was softened by the blazing sun, was from ten to twenty feet deep, but the view was one of the most impressively sublime I ever beheld. Snowy, ice-sculptured ranges bounded the horizon all around, while the great lake, eighty miles long by fifty miles wide, lay fully revealed beneath a lily sky. The shore lines, marked by a ribbon of white sand, were seen sweeping around many a bay and promontory in elegant curves, and picturesque islands rising to mountain heights, and some of them capped with pearly cumuli. And the wide prairie of water glowing in the gold and purple of evening presented all the colors that tint the lips of shells or the petals of Lilies—the most beautiful lake this side of the Rocky Mountains. Utah Lake, lying thirty-five miles to the south, was in full sight also, and the river Jordan, which links the two together, may be traced in silvery gleams throughout its whole course.

Descending the mountain, I followed the windings of the main central glen on the north, gathering specimens of the cones and sprays of the evergreens, and most of the other new plants I had met; but the Lilies formed the crowning glory of my bouquet—the grandest I had carried in many a day. I reached the hotel on the lake about dusk with all my fresh riches, and my first mountain ramble in Utah was accomplished. On my way back to the city, the next day, I met a grave old Mormon, with whom I had previously held some Latter-Day discussions. I shook my big handful of Lilies in his face, and shouted, "Here are the true saints, ancient and Latter-Day, enduring forever!" After he had recovered from his astonishment, he said: "They are nice."

The other liliaceous plants I have

met in Utah are, two species of *Zizadenus*, *Fritillaria atropurpurea*, *Calochortus Nuttallii*, and three or four handsome *Alliums*. One of these Lilies, the *Calochortus*, several species of which are well known in California as the "Mariposa Tulip," has received great consideration at the hands of the Mormons, for to it hundreds of them owe their lives. During the famine years between 1853 and 1858, great destitution prevailed, especially in the southern settlements, on account of the drought and grasshoppers, and throughout one hunger winter in particular, thousands of the people subsisted chiefly on the bulbs of these Tulips, called "sego" by the Indians, who taught them its use.

Liliaceous women and girls are rare among the Mormons. They have seen too much hard expressive toil to admit of the development of lily beauty either in form or color. In general they are thickset, with large feet and hands, and with sun-browned faces, often curiously freckled, like the petals of *Fritillaria atropurpurea*. They are fruit rather than flower—loaves of good brown bread. But down in the San Pitch Valley at Gunnison I discovered a genuine lily, happily named Lily Young. She is a granddaughter of Brigham Young, slender and graceful, with lily-white cheeks, tinted with clear rose. She was brought up in the old Salt Lake Lion House, but by some strange chance has been transplanted to this wilderness, where she blooms alone, the "Lily of San Pitch." Pitch is an old Indian, who, I suppose, pitched into the settlers, and thus acquired fame enough to give name to the valley. Here I feel uneasy about the name of this Lily, for the compositors have a perverse trick of making me say all kinds of absurd things wholly un-

warranted by plain copy, and I fear that "The Lily of San Pitch" will appear in print as the widow of Sam. Patch. But, however this may be, among my memories of this fair, far land, that Oquirrh Mountain, with its golden Lilies, will ever rise in clear relief, and associated with them will always be Lily Young, the prettiest lily lass in Utah.—*Cor. Bulletin.*

PASSIFLORA EDULIS AND PASSIFLORA GRANADILLA.

We have had the pleasure of receiving from Messrs. Grell & Co., of the Nursery and Tropical Fruit Garden, Los Angeles, a specimen of the fruit of the *Passiflora edulis*. This firm informs us that they have one plant of this variety, only two years old, in full bloom, and that they find the fruit quite as delicious in their locality as they ever found it in Peru. With regard to the *Passiflora granadilla*, these gentlemen state, that they shall take pleasure in sending us a sample of it in the autumn. Both specimens were raised and cultivated out of doors, the plants grow very rapidly, their fruits are wholesome and very refreshing, and they will do well in the open air in many other parts of the world which are much cooler than Los Angeles. The *Passiflora granadilla* vine is much cultivated in the gardens of Jamaica, and other tropical and semi-tropical regions. Its luxuriant perennial shoots are there formed into arbors, furnishing a thick shade, rendered more grateful by the beauty and odor of the flowers and fruit, which are both produced at the same time, on different parts of the branches. The fruit is quite large, of an oblong shape, about six inches in diameter from the stalk to the eye, and fifteen inches in circumference. It is

greenish yellow when ripe, soft and leathery to the touch, and quite smooth; the rind is very thick, and contains a succulent pulp (which is the edible part), mixed with the seeds, in a sort of sack, from which it is readily separated. Wine and sugar are commonly added to it, when used. The flavor is sweet, and slightly acid, and it is very grateful to the taste, and cooling in a warm climate. It is readily propagated by seeds or cuttings. It requires to be grown in a rich loam. Fruits of the granadilla and some other of the edible species of the *Passiflora* are commonly seen in the Paris markets, and occasionally in Covent Garden market, London, as they not unfrequently ripen under glass in those countries.

Nearly all the varieties of the Passion vine can be grown successfully in the open air in this climate; and considering the beauty of their flowers, it is surprising that so few of them are cultivated here. The old variety of *Passiflora cærulea*, with only here and there a specimen of *P. edulis* or *P. coccinea*, are most common. Some of our florists, however, have introduced lately a few other sorts that are edible, such as *P. alata*, *P. incarnata*, and *P. quadrangularis*, but they are more scarce than they ought to be. The part that is eaten is either the fleshy axil attached to the seeds, or the juicy pulp in which they are imbedded. This pulp has an agreeable cool taste in some species, and a sweet mawkish flavor in others. The *P. edulis* is one of the most agreeable and luscious of them. We append the following notice of Messrs. Grell & Co., concerning two of these rare and interesting ornamental vines and their fruits. For sale and sent free of postage charge, *Passiflora edulis*, one plant, \$1.00; *P. granadilla*, one plant, \$2.00. Both of

these produce delicious fruits. Seeds of fruits of the above kinds for nurserymen: *Wigandra magnifica*, 100 seeds 25 cents. Grell & Co., Sub-Tropical Nursery, Los Angeles, Cal.

HUDEMAN'S VILLA IN NAPA VALLEY.

Accompanied by a large, cheerful, and pleasant party from Napa Soda Springs, in two carriages, we started to visit these charming grounds. The ride from the Springs was in a south-easterly direction, and over a large portion of the valley of Napa, through many yellow fields of ripened grain, orchards and vineyards. The distance was about eleven miles, and partly through an extensive canyon, along a small creek bordered with many handsome trees and shrubs, yet, owing to the lateness of the season, but few wild flowers, and the road in many parts thickly embowered by overarching vegetation. The admirably planted and improved premises of the Hudeman estate, and especially around the dwelling of the proprietor, lies in a spacious depression or vale among hills and mountains. Copious living springs are utilized to form and feed several small lakes, and to create a succession of beautiful fountains. The soil is exceedingly rich, and the situation sheltered by the mountains to the west, shielding it from the highest and coldest winds which blow on our coast. Many tropical and semi-tropical plants flourish in the utmost luxuriance here, and form some of the choicest objects of attraction to the visitor. Several species of the most tender Palms, the Shaddock bearing fruit, the sweet Orange, and the *Magnolia grandiflora*, with its splendid white blooms, are conspicuous among them. The view from the house of these fine lakes, their is-

lands, and three fountains throwing up their crystal jets in a direct line, form altogether most delightful objects. The great variety of the cultivated trees, plants, and flowers, and the wonderful luxuriance of their growth and blooming, are very striking and attractive to strangers from abroad not acquainted with California's wealth in this regard. Several picturesque rustic bridges have been erected over the rivulets which flow into the lakes, and the main ground leading to the islands. These islands, many of them, are planted with one dense mass of brilliant flowers of all hues, and rustic arbors are erected on them, covered with graceful and lovely climbing plants of many varieties. Large Weeping Willows border some portions of these enchanting lakes, and dip their drooping branches in the water, in which grow many of the Eastern fragrant white Lilies and other choice aquatic plants. Some of the finest Eastern and European shade trees are here disposed either singly or in groups.

All these expensive improvements have been accomplished, and their elegant growth effected, within the short period of fifteen years. But how quickly does all vegetation in the highly favorable climate of California effect magnificent results! These effects have been produced in the midst of the region of the redwoods, and specimens of these valuable trees have been most successfully intermingled with the more modern growths of other hardy as well as exotic vegetation.

Our happy party lunched under the shade of some of these lofty and large redwood monarchs of the forest, whose agreeable aroma gave additional relish to our eatables.

There are no fish in these rather shallow and quiet lakes or ponds, and prob-

ably the waters are not cold enough for salmon or trout, or any other of the game fish, though it is likely that the carp family would prosper well in them, as they do not need cold water, but do best in that which is somewhat tepid.

The whole of this valuable and fertile estate, with its grain and pasture lands, covers about 2,000 acres. Wheat grows well on the plateaus on the summits of the surrounding high hills. The situation is somewhat secluded, and highly romantic—such a one as would suit a person rather fond of solitude, a lover of the beauties of nature, and who wishes to retire from the bustle and turmoil of the busy and often troublesome world of either toilsome commerce or city dissipation. Here the devotee of all natural objects, and one fond of communing much with his own thoughts, can find a fit place for these inclinations, and abundant subjects upon which to feed his mind and imagination, to his heart's content. The climate is extremely mild, and almost entirely free from any frost, the elevation being just sufficient to favor these very desirable conditions. Owing to the dryness of our late winter and spring, the springs are everywhere much lessened in their usual flow, which accounts for these lakes being now shallower than usual; and therefore the boats which are kept on them can not be enjoyed with the zest which deeper water furnishes.

This splendid property is only one among the many pretty farms and residences which abound in Napa Valley—one of the Edens, garden spots, or Paradises of our most favored State.

THE *Fresno Republican* learns that the Easterby farm has been sold for \$40,000. It contains 2,500 acres, and sixteen feet of water for irrigation.

THE JAPANESE PERSIMMON (*DIOSPYRUS KAKI*).

A short time since, the Rev. Mr. Loomis, agent here for the distribution of this valuable fruit tree, exhibited to us some handsomely colored Japanese drawings of the rather numerous varieties of its handsome and delicious produce. These many kinds of the fruit were some of them as large as one's doubled fists, of fine and various shades of crimson, orange, and yellow, and of several different shapes of round, nearly square, and oblong. During the visit of this gentleman to this city in the spring, his trees of two or three of the best sorts of this fruit, were in much demand among fruit cultivators, and we have had an opportunity of observing that most of those that have been planted in various parts of the State have done well.

We also saw several neat and pretty specimens of the wood of the tree in the form of paper cutters, etc. This wood has the appearance, hardness, and close grain of ebony, and being stained in Japan with the juice of the Persimmon, it imparts to some portions of it the blackness of the former.

We understand that, next season, a Japanese horticulturist, well experienced in the culture of trees in his own country, and especially of the various sorts of the Persimmon, will come to this city well furnished with all the best varieties of that promising genus of fruit bearing trees.

And this subject reminds us that we have lately noticed in a letter from a correspondent (M. Milton) to the *Albany Cultivator and Country Gentleman*, that the veteran horticulturist—Dr. I. P. Kirtland, of Cleveland, Ohio—possesses a large tree of the Persimmons (*Diospyrus Virginiana*), ornamenting

his grounds, which annually bears a good crop of fruit, and ripens and is edible before frost. The writer states that: "Considerable difference of opinion exists (East) about the action of frost upon this fruit to bring it to maturity, the general belief being that frost is necessary for its ripeness, but in this case (at Dr. Kirtland's) it is not. There are scarcely two trees of the Persimmons which bear fruit having the same flavor or ripening at the same time, some trees bearing fruit which retains that astringency peculiar to it in a green state, even after frost, while others, like the one mentioned above, have edible fruit without the influence of frost. This variableness may be attributable to soil or locality, just as Pears and other fruit differ in appearance and flavor when growing under different conditions."

The above evidence concerning the Eastern kinds of the Persimmon family, seems to us at this time in California to be somewhat interesting, in view of the late introduction of the Japanese fine varieties into our State, and the prospect of their larger sale in the future.

THE DATE TREE (*PHENIX DACTYLIFERA*).

This Palm, sung from time immemorial by the poets of the East, is as indispensable as the camel to the inhabitants of the wastes of North Africa and Arabia, and, next to the "ship of the desert," the devout Musselman esteems it the chief gift of Allah. Few Palms have a wider range, for it extends from the Persian Gulf to the borders of the Atlantic, and flourishes from the 12th to the 37th degree of northern latitude. Groves of Dates adorn the coasts of Valencia in Spain; near Genoa its

plantations afford leaves for the celebration of Palm Sunday; and in the gardens of Southern France a Date tree sometimes mixes among the Oranges and Olives. But it never bears fruit on these northern limits of its empire, and thrives best in the oases on the borders of the sandy desert. Here it is cultivated with the greatest care, and irrigated every morning, for though it will grow on an arid soil, it absolutely requires water to be fruitful. It is not to be wondered at that the tribes of the desert so highly value a tree which, by enabling a family to live on the produce of a small spot of ground, extends, as it were, the bounds of the green islands of the desert, and rarely disappoints the industry that has been bestowed on its culture. It is considered criminal to fell it while still in its vigor, and both the Bible and the Koran forbid the warriors of the true God to apply the axe to the Date trees of an enemy.

It seems that at present we are not completely acquainted with all the conditions necessary in California to make this valuable tree bear fruit. But we have lately been informed that in two or three cases it has shown signs of producing fruit in some favorable localities as to climate, soil, and sufficient irrigation.

LANDSCAPE GARDENING.—NO. 1.

To a person visiting the Pacific Coast for the first time the flora of California should have peculiar attractions, especially if he happens to arrive in the early part of the season. The trees and plants which he has been accustomed to see only in greenhouses in a less favored clime he will find here growing in the utmost profusion in the open ground. To illustrate—the different kinds of Acacias which are at the

East treated as greenhouse plants, here grow to good-sized trees, and add much to the beauty of the landscape, and this is also true of many varieties of the Palms and other genera, and a magnificent specimen of the *Agave Americana* has lately attracted my attention, which is growing in the grounds of M. J. O'Connor, Esq., at San Rafael, and which would astonish some of our Eastern friends could they but see it, with its stately stem of more than thirty feet in height and over a foot in diameter, with its immense peduncles and flowers seemingly too numerous to count. The rapidity with which trees and plants grow in California to a new comer appears something wonderful. Yet, notwithstanding the ease and vigorous growth of vegetation here, it is rare indeed to see anything like a high style of art displayed in the laying out of grounds, but which is prominent among the better class of places at the East. Art as applied to landscape gardening in California is as yet in its infancy. Perhaps there are no two words in the English language that are so poorly understood among us as those of landscape gardening. To simply lay out and plant half an acre, or even an acre of ground, does not constitute landscape gardening. As well might a painter of signs call himself a landscape painter, as the ordinary class of gardeners call themselves landscape gardeners (which many of them do). No, it embraces a far larger scope. It is art applied to nature, and in such a way as to harmonize all existing parts. Landscape gardening is a profession requiring years of study and application for one to become proficient in the art, and it must be acknowledged as such, as it is in Europe and the older parts of the United States, before people generally will come to discriminate

between art and conceit. To tell some of our friends who have, what they consider nice places, that they are a century behind the age in the way of laying them out and their treatment of the trees, etc., would seem very much like insulting their intelligence; yet what are the facts in the case? Look at the gardens around San Francisco and Oakland and you will then see that the evergreen which abounds the most is the Monterey Cypress, and you will also notice in almost every case that tree is clipped into the form of a pyramid or cone, or something of the sort—a style that was in vogue 200 years ago, but which has been abandoned among those who have had an appreciation of the natural beauties of trees for more than a century. A certain writer on taste has said: "There appears to be in the human mind a natural love of order and symmetry. Children who at first draw a house upon a slate generally represent it with correspondent parts; it is so with the infancy of taste. Those who during the early part of life have given little attention to objects of taste are captivated with the regularity and symmetry of correspondent parts, without any knowledge of congruity, or a harmony of parts with the whole. This accounts for those numerous specimens of bad taste which are too commonly observable in the neighborhood of great towns." Look at the public squares, or parks, as they are called in San Francisco, and see to what extent this barbarous practice of clipping trees into such a shape that each tree shall correspond to its fellow, and the force of my remarks will be understood. My intention is not to ignore the use of the pruning knife or shears, but to decry the practice of destroying the individual beauty of a tree by clipping it into an unnatural shape.

The subject of landscape gardening, however, is so vast that little more can be said in an article limited as this is, than simply to hint at incongruities and point out a remedy. Without going into details, there are several points upon which I would like to discourse, such as congruity, utility, order, simplicity, variety, continuity, association (picturesque effect, etc.), but which must be deferred to some future time. My object in this being merely to call attention to a subject which is deservedly entitled to very great encouragement by the people of California.

HORTICOLA.

THE PASSION FLOWER.—The plant so much prized at the North, the "Passion Flower," so called from a supposed resemblance to a cross guarded by twelve apostles, and surrounded by a multitude, grows very thriftily out of doors in California. A lady writes from Napa: "While swinging in a hammock in my porch a few days since I counted two hundred and fifty Passion Flowers. In the rear of the house is a verandah, with a similar vine, which, though only four years old, has a stem as large as my wrist. This I have given up to the birds, which are building a city for me. I can count more than forty nests. My Fuchsias are also climbing to a length never seen in the East, and as for our Grapes, they are a sight to see when the different kinds are laid in one box; they range from black to white, including red, pink, lilac, purple, and a lovely French gray."

AN Alden fruit dryer is being erected at San Andreas, and is rapidly approaching completion. The dryer will evaporate about 8,000 pounds of green fruit per day, and its capacity can be increased to 20,000 pounds daily if desirable.

But a little later in the season we expect to find a reaction in favor of Pilarcitos.

We regret to have to chronicle the death by drowning of a most estimable young gentleman—Mr. Samuel R. Kerr—at Lake San Andreas, three weeks ago. The melancholy accident was caused by the upsetting of a boat from which the deceased and a friend were fishing. Mr. Kerr, who was only twenty-one years of age, was a young gentleman of rare promise and amiability, and a most esteemed member of the Club.

TROUT FISHING IN LAKE PILARCITOS.

It is not necessary at the present day to write at any length in praise of angling, and still less on that perfection of the art—fly-fishing. Volumes have been written by hundreds of enthusiasts on this subject, and I do not flatter myself that anything specially that I can add will form greater embellishment to the encomiums already passed on this, to many, very favorite sport and recreation. Fishing has long since ceased to be the privilege of the wealthy and the gentlemen of leisure only; such are the facilities and cheapness of travel, and the culture of fish everywhere (thereby increasing so greatly their numbers), that everyone may fish who will, and most men are content without casting about for reasons, to base their liking for this amusement on the pure love of the sport. With very many, however, secondary and subsidiary delights commend them to this amusement. As I have just observed, fly-fishing, in particular, forms the very summit of the science of angling. I may add, too, that it charms its votaries by its associations; and this brings me at once to the locality—Lake Pilarcitos—which forms the caption of this communica-

tion. Nowhere, perhaps, in this State is there a piece of water surrounded with more home-pictures or scenes of natural beauty than this lovely lake possesses. In the spring of the year especially, its margins, hills, and mountains around are starred with brilliantly-colored flowers, and it is clothed with just enough of handsome forest-trees and flowering-shrubs to make the views most enchanting. Here the songs of birds thrill the fragrant air, and the hum of the insect world soothes the senses; besides, the woodlands and valleys radiate with blossoms, and are heavy with leafy shade. With these pleasant concomitants all about the angler, is it a wonder that so many members of the Sportsman's Club, as well as their families, can not resist its fascinations? In a word, with regard to the sport—to the vigorous correspondence of eye, hand, and judgment which it calls forth when the quarry is so vigilant and active a fish as the trout; these and the like are patent recommendations of fly-fishing to young and old, the jaded mind and poetic temperament.

But now to the more practical part of this paper, for I fear I have dwelt too long on the romantic and picturesque portion of it. This charming lake is at this time swarming with the coveted game and spotted favorites. They take the fly readily either by out-casting it from the bank or a boat. But the greater number can, perhaps, be captured with the rod, by trailing or trolling the leader and flies from the stern of the boat, rowing at a moderate rate. Of course this is more pleasantly performed by two persons, one rowing while the other fishes. A single person can operate in this way alone, by laying the rod down with a foot on the butt-end, and when a fish seizes the

bait and hooks itself, dropping the oars, seizing the rod, and playing and landing the trout. The fish now mostly taken average about ten inches. There are, no doubt, many much larger ones in these waters, but a great number of the small ones are not very courteous to them, and so take the lead in seizing the fly or bait. Bait-fishing can be had with pretty fair success by using the worm, piece of fish, or tail of a boiled shrimp, peeling off the shell, on a small hook, in rather deep places. The water of the lake is very low—lower than it has been for many years—and this is probably the chief reason that the fish are so eager to take the hook, food for them being scarcer than usual, and their eagerness to bite being in proportion to this fact. They are also confined to a smaller space, and therefore fall a more easy prey to the angler. There are some good-sized Eastern trout in the lake—at least some of these handsome and prized fish were put in last year; but none of them have been captured this season. For next season's angling, the trout will have attained about double their present weight, which, with a great diminution in the numbers of the smaller ones, will add greatly to the pleasure of the anglers. The fishermen now have the satisfaction of catching many of the length of ten or eleven inches, but none of sufficient weight to afford very exciting sport. All the fish, however, are large enough, and sufficiently good in quality of meat to form a nice dish for the table when properly and delicately cooked. The house where the visitors take up their abode is not more than two hundred yards from the boats, of which there are eight. It is delightfully situated on a knoll, and embosomed in a grove of native oaks and other fine trees and

evergreens. The active, vigilant host and his family are attentive and accommodating to their guests; the fare is very good and the charges moderate. If anglers and their lady friends can not pass an agreeable time for a day or two, or more, at this pleasant and beautiful spot, they must be hard to please, or not admirers of the beauties of Nature, or lovers of the gentle art. For my own part, I hugely enjoyed my visit of two days, and a good deal the more so that I captured in that time over one hundred of the finny tribe, and took my leave for the present with renewed health and strength, cherishing since also many happy memories of my sweet sojourn there.

ON July 28th John Thomas shipped to San Francisco from Benicia a salmon that weighed 45 pounds, and a sturgeon that brought down the scales to 485 pounds; the largest ever seen here.

THE Santa Cruz *Sentinel* says: One day of the present week, on Ordish's ranch, in the foot-hills, a son of Captain Allender shot an old female ground squirrel, and in her pouches found 1,270 grains of wheat (4 ounces) intact, and the nearest field of grain from where the squirrel was killed was half a mile distant.

THE BANANA.—It has been demonstrated beyond doubt that Bananas can be grown pretty successfully in Los Angeles County, and we have faith to believe that they may be grown as well in the thermal belt in Sonoma County. The tree attains full growth in about ten months, and it is a very profitable crop as well as a most delicious fruit. We hope some of our country men living in the thermal belt will obtain a few bulbs and make the experiment.

Selected Articles.

THE OLD, OLD HOME.

When I long for sainted memories,
Like angel troops they come,
If I fold my eyes to ponder
On the old, old home.
The heart has many passages
Through which the feelings roam,
But its middle aisle is sacred
To the thoughts of old, old home.

Where infancy was sheltered,
Like rosebuds from the blast;
Where girlhood's brief elysium
In joyousness was passed;
To that sweet spot forever,
As to some hallowed dome,
Life's pilgrim bends her vision—
'Tis her old, old home.

A father sat, how proudly,
By that old hearthstone's rays,
And told his children stories
Of his early manhood's days;
And one soft eye was beaming,
From child to child 'twould roam;
Thus a mother counts her treasures,
In the old, old home.

The birthday gifts and festivals,
The blended vesper hymn,
(Some dear one who was swelling it,
Is with the Seraphim);
The fond "good-nights" at bed time—
How quiet sleep would come,
And fold us all together,
In the old, old home.

Like a wreath of scented flowers,
Close intertwined each heart;
But time and change in concert,
Have blown the wreath apart.
But dear and sainted memories
Like angels ever come,
If I fold my arms and ponder
On the old, old home.

—*Cincinnati Daily Times.*

USES OF THE PRICKLY PEAR.

We have seen the articles used, but sparingly; they were not the sort of things as we find them in Queensland, to be handled without consideration; and we are glad to see, therefore, that

other people are having a hand in the business. At the last meeting of the Acclimatization Society, the following paper, from India, was submitted:

The Prickly Pear, or, as it is called in Marathi, the Phudeh Nurung, is a cactus very common in the Deccan of the Bombay Presidency, and is classed twelfth in the classification by Linnæus, who named it the *Opuntia vulgaris*. It is called the Indian Fig. This cactus is the hardiest of all the genera of cacti, and on Mount Etna, where forests of it exist, it grows in chinks and crevices in the rocks where there appears scarcely soil enough to contain its roots. A specimen of the plant was taken to the botanical garden at Kew, near Richmond in Surrey, where it is now, among many others of the same family, admired as a curious exotic. Attempts have been made and a desire exists, I believe, entirely to destroy this plant. It is, however, judicious to accept as a truth that every created thing has a use in Nature's great and frugal scheme, to which it can be legitimately and indeed profitably applied. The *Opuntia vulgaris* came to this country from America, and is there met with even on the Rocky Mountains up to 49° of north latitude. Various methods are found of using this plant and members of its family in other countries. In North America an *Opuntia* is used for protection around forts. In the very poorly wooded districts of Chile and Peru the stems of an *Opuntia* take the place of wood for small beams and door-posts, and in the north of the former country it is used as firewood for copper smelting. In Peru the thorns are cleverly made into needles. In California hedges are made with the *Opuntia vulgaris* around cultivation. In the West Indies the *Opuntia vulgaris* is used for feeding

pigs, also for hedging, and is there cultivated. In Mexico the *Opuntia vulgaris* and *Opuntia cochinillifera* are used for hedging the boundaries of fields, and figure in one of the quarterings of the arms of that State. The cultivation of these plants has been but lately introduced into South Italy, Portugal, and Spain. In the latter country, a feast occurs among the poor at the time of the ripening of the fruit in September. The fruit is in Spain considered so great a favorite that in the month of September hundreds of vendors sit in the streets of the town busily employed in stripping the fruit off the branches (which have been gathered loaded with it), their hands and arms being fearfully swollen with the spines that they have not leisure to avoid, so great is the impatience of the purchasers to obtain the fruit. In Convent Garden market Prickly Pears are sold at the rate of two pence each. I may remark here that during the years 1870-71 and 1871-72, when the crops in some of the eastern talukas of the Poona and Ahmednuggur zillas were almost a total failure, the fruit of the Prickly Pear was generally eaten by Mahars, Mangs, and others of the poor class. In Greece the *Opuntia vulgaris* is used for hedges, and in Sardinia and Sicily for feeding pigs. *O. vulgaris* and *O. cochinillifera* are carefully planted and cultivated in Mexico, California, and on the coast of Granada; also in the Canary Islands for fence material, and the latter species for the production of cochineal. The objections raised to using the *Opuntia vulgaris* as a hedge material and otherwise are, I believe, its unsightliness; it harbors vermin; its tendency to spread; it takes moisture from the land and adjoining crops.

With reference to its unsightliness, I

acknowledge that we very commonly imagine we do not require it, and think that its growth at all is quite a mistake; but has not its unsightliness something to do with the fact that no general attempt has ever been made to make it really useful? It is permitted, unheeded and from want of common care, to earn a terribly bad name for itself. It covers the waste land adjoining many villages, grown there into large and lofty impenetrable clumps, affording shelter for vermin, and is unquestionably, thus situated, not only unsightly, but a very great nuisance. In such cases it has mastered not served us. The fault here, however, is scarcely that of the Prickly Pear, but rather of those who permitted it to attain unmanageable dimensions, and to grow where it is not required. Grass grown upon neglected roads is unsightly, simply because it is "without the fitness of things," and is neither required nor useful there. I have seen very many well-kept Prickly Pear hedges, that had anything but an unsightly appearance, partly overgrown with creepers and with bushes and trees growing in their midst; the latter shielded from injury by the Prickly Pear from their youth up; on the contrary, they appeared, in the integrity of the expression, protecting hedges, strong, durable and useful, and utility is certainly one of the lamps of beauty. "It harbors vermin." When used as a hedge this is true, and as far as regards fields, plantations, and forest properties generally, it is probably an advantage, as if useful vermin are to be permitted to exist, they are less liable to do harm in the hedges than elsewhere. "Its tendency to spread" is apparently a far more serious charge. I acknowledge that if there is carelessness exhibited in the disposition of the cuttings of the

Prickly Pear; if, instead of being made use of, they are thrown about or allowed to float down a nala or river, they will, without doubt, take root where they are not required, and become a nuisance; but a careful gardener does not throw his gathered weeds carelessly about; he collects them into a heap and burns them. There is not the slightest difficulty in drying and burning, as manure, pieces cut off of Prickly Pear hedges that are trimmed during the hot months of the year, and this operation, moreover, at this season of the year, renders highly unlikely, if not impossible, the seeding of the plant, for it is only on large, overgrown, useless clumps, and on hedges left untrimmed from year to year, that the seed is procurable at all. This leads to the remark that, if the plant is everywhere made use of as a fence, and nowhere permitted to grow to a massive, useless size, the seed will be difficult to obtain, and its undue spread about the land thus checked. In fact, by its general use, if what is here advanced is correct, the plant would require to be cultivated to obtain its seed; and this is the state of things from my point of view to be brought about. There are quantities of Prickly Pear hedges around house compounds in Poona that are exactly in the same useful, orderly state they were fifteen years ago. They have given no trouble, nor is it found that the plant has spread itself into adjoining gardens or on the sides of the roads. There are some hedges, on the other hand, in a disorderly state; these, however, in most cases are situated along roads, and surround lands the property of Government. The Prickly Pear was used to protect from injury, by cattle and vermin, the many beautiful trees now lining the lately-constructed roads around

Poona; but after its work was done with such a happy termination—that is, after the trees were strong enough to take care of themselves—it might have been cut down, burnt, and the ashes laid to the roots of the trees as a manure, and thus, as in life, so the plant would have proved useful when dead. Now, however, pieces are scattered about, and some have taken root here and there, and by consequence, forgetting, perhaps, that it successfully fulfilled its mission as our servant, we stigmatize it as troublesomely persistent, and thus blame the plant for possessing a quality in which, from my point of view, its highest usefulness consists. It takes moisture from the land and from adjoining crops, is stated as an objection. Its power to draw moisture to the earth's surface, not only through hard, apparently hopelessly sterile land, but through disintegrated trap, is very extraordinary; but herein lies, I certainly think, one very strong argument in its favor, and I therefore, if upon no other account, strongly advocate its general use all through those parts of the country where, by reason of a lack of moisture, or for other causes, it is difficult or impossible, without its assistance, successfully to grow other descriptions of living hedges. In the eastern districts of the Poona zilla, except in the Government babool plantations, scarcely a tree or a shrub is to be seen. Even those trees which formed the natural boundaries of fields and the limits of village lands are destroyed, and the land, during the hot months of the year lacking shade and the means of retaining moisture near the surface, becomes hard and cold, and unnaturally destitute of moisture. Should hereupon a scanty rainfall ensue, the land remains dry and unproductive. In

most European countries much more attention than formerly is now being given to the construction of living hedges and the growth of trees around cultivation. In parts of Germany the *Robinia pseudo-acacia* is, I believe, almost universally being grown around fields.—*Queenslander*.

HEN MANURE IN THE GARDEN.

One of the best fertilizers within easy reach of the farmer and villager, is the contents of the hennery. This often goes to waste, and the hens find their own lodging in trees, and on sheds, and other outbuildings. But on most farms there is a roost under cover, where the droppings accumulate, and are kept in a dry state. As a rule, not much care is bestowed upon it. Often it lies upon the floor without absorbents, the ammonia constantly escaping, to the injury of the fowls. Sometimes it has an annual cleaning, but oftener it lies for years only wasting. Analysis shows it to be exceedingly rich in nitrogen, worth a cent a pound, or more, in the state in which we usually find it. If all its good properties were carefully gathered, and saved by the use of absorbents, it would be worth much more than this. There are two ways of doing this, equally effectual—daily sweeping and gathering into barrels or boxes, or by frequent deposits of absorbents under the perches. The former method involves a good deal of labor, and is resorted to only by those who insist upon the utmost neatness in the hen-house. The droppings deposited in the barrels are covered daily with plaster, dry peat, or some other good absorbent. Our own method is to apply the absorbents frequently under the roosts. The hennery has a cemented

floor, and is built into a bank, fronting on the south, with a large supply of windows to give light and heat. Spring water is brought into the poultry-house by a pipe, and by the turning of a faucet a constant supply of fresh water is secured. The whole floor is covered with absorbents of various kinds, in which the fowls scratch and dust themselves as freely as they choose. The staple absorbent in summer is dry garden soil or road dust, gathered as the state of the weather permits. In the winter it is sifted hard-coal ashes from the furnace. In addition to this, seaweed, and the wrack from the shore are frequently thrown in, which furnishes food for the fowls, as well as helps the manure heap. As soon as the smell of ammonia is detected, more earth is added, and thus the pile of manure grows gradually through the year. It is removed as often as a manure is wanted in the garden, at planting, or to assist growing crops. It needs to be used with caution, either in the dry or liquid state. We have large faith in the economy of liquid manure, applied to fruits and vegetables in the summer. It is very good in dry weather, and not much less good in wet, if the soil is well drained. The quantity of water that plants will take up in the growing season is wonderful. We keep a large tank, which is supplied with manure and water from the hennery, and frequently applied to Cucumbers, Squashes, Melons, Tomatoes, Cabbages, and to Grape-vines and other small fruits. The liquid manure adds much to the vigor of the plants, and the size and quality of the vegetables and fruits. To those who have never tried it, we think the free use of liquid manure will open a new revelation in gardening. Try it on the flower borders, and on all the growing crops.—*Exchange*.

THE GUM ARABIC TREE.

We have many Acacia trees in this State, and they grow well in some localities, while in others they are destroyed by a scale insect. We are not aware of the species of all the Acacia trees in the State, nor do we know whether any one has the "Egyptian Gum Arabic Tree" (*Acacia Vera L.*). If not, the introduction of it would seem to be a matter of interest, and possibly the foundation of a promising industry. The locality in which the experiment might be tried would have great influence upon the result, for the tree is represented to be a fastidious grower. It is said to be doing well in Florida, and Mr. Benjamin Hall gives the Florida *Agriculturist* the following interesting account of the tree: "This semi-tropical tree, or, more properly, shrub, rarely exceeds fifteen feet in height, and is remarkable for its peculiar, crooked-shaped trunk. Its foliage is of a pale green color, and it may be said to be the most beautiful of the Acacia family. It puts forth its flowers in March, and its seeds, which grow in a hard, coriaceous pod, somewhat resembling the *Acacia jambosia*, and its seeds those of the Lupine, which yields a reddish dye, used by tanners in the preparation of leather. This tree, which affords the finest gum arabic of commerce, is a native of the sandy deserts of Arabia, Egypt, and the western parts of Asia; it also grows abundantly in Barbary and other parts of Africa, particularly on the Atlas Mountains. In Cairo and Alexandria in Egypt, many streets are adorned with this tree, which is set on either side. In Morocco, where this tree is called "Attelep," large quantities of this gum are collected for export. The trunk of this tree is covered with a

smooth, gray bark, while that of the branches is of a yellowish green or purple tinge. At the base of the leaves there are two opposite awl-shaped spines, growing nearly erect, and having a slight glandular swelling below. The wood is hard and takes a good polish. The gum exudes spontaneously from the bark of the trunk and branches of the tree in a soft or nearly fluid state, and hardens by exposure to the air or to the heat of the sun. The more sickly the tree, the more gum it yields, and the hotter the weather the more prolific it is. A wet winter and a cool or mild summer are unfavorable to the crop. The gum begins to flow in Egypt in December, in Florida in March, immediately after or near the time of the flowering of the tree. Afterwards, as the weather becomes hotter, incisions are generally made in the bark to assist the exudation of the gum. The gum when new emits a faint smell, and when stowed in the warehouse, it may be heard to crack spontaneously for several weeks, and this cracking is the surest criterion of new gum, as it never does so when old. Several kinds of gum, yielded by different trees, are occasionally to be met with, but that which is commonly substituted for it is brought from the island of Senegal, on the coast of Africa, and is called 'Gum Senegal.' This tree is remarkably sensitive to sudden changes of the weather, and its leaflets are open only to the rays of the sun. There are several trees growing successfully on the Indian River, and appear to be adapted to this soil and climate. This tree is possessed of much merit, and is worthy of culture, both for ornament and profit. It is propagated by its seeds, which can be obtained by mail, at letter postage rates, through the American Consul, in Cairo, or Alexandria, Egypt."

TREES FOR USE AND ORNAMENT.

It is far too common a practice for those who want a few or many trees about their grounds to select those most easily and cheaply obtained, without taking into consideration their usefulness in the future. A Cotton-wood or Lombardy Poplar may grow rapidly and give shade and make a good show in much less time than a Hickory or Maple, but what are they good for besides the shade and show? Of course, if cut down and the wood well seasoned, it will burn, and if a man had enough of it he might keep himself and family warm, and perhaps keep the pot boiling with such fuel, but it is a poor substitute for a much better article of wood which might be produced upon the same land with really no greater outlay of money or labor. Now if a man plants Sugar Maples he has something which is growing better and more valuable for the next hundred years, and can look forward to a time when he or his children can tap the trees and make a few pounds of sugar annually from each. If a tree has to be cut down because it crowds its neighbor, it will make excellent firewood, and, if the stem is large enough, good timber for various purposes. By planting shell-bark hickories he can be assured of having the toughest of timber at hand when wanted, and the time will soon come when a few bushels of the nuts can be enjoyed at home, or sold in market for cash.

Black Walnut is another tree which may be considered both useful and ornamental, and although one may have to wait a good many years before they have grown large enough to be of value for cutting up into lumber, still the owner can have the satisfaction of knowing that every year they are com-

ing nearer that point, whether they reach it in his day or not.

Then there are various species of Oaks, which soon reach a size at which they can be made useful both for firewood and timber for different kinds of farm implements. Even the common Basswood or Linden, although not very valuable for timber, is a handsome tree and worth growing for the honey it yields, wherever bees are kept as a source of profit.—*Rural New Yorker*.

EVERGREENS FROM SEEDS.

All evergreens, and the Larches, require nearly identical treatment in propagating them from seed. The seed should be sown pretty thickly on carefully prepared beds, as early in the spring as the soil can be worked. A better plan would be to mix the seed with sand, in boxes, in the fall, and place them where they will keep moist, and be secure from mice, and sow in the beds in the spring. About four times the diameter of the seeds is the proper depth to cover them.

The beds should have a frame erected over them, of from six to seven feet high, or at such a height as to enable the workmen to weed and care for the beds. This frame should be covered lightly with leaf boughs—just enough to guard the beds from the direct rays of the sun, but not to prevent moisture from reaching the ground evenly. If they make good growth the first season the shade may be removed the second; but, if weak, it is better continued partially the second year. A light mulch is also necessary in winter, especially if the soil is at all liable to heave.

The seedling plants should be transplanted into other beds at two years old, and here again, it is better to shade them slightly. If planted six

inches by three inches, an immense amount of plants may be got into a comparatively small space. As the plants crowd, take up every other row and transplant, and again, alternates in the remaining rows, until the plants stand twelve inches apart each way. Then, as they begin to crowd again, thin until they stand two feet apart; and again, so that ultimately the trees stand four feet apart each way. These, so left, should be root pruned, if fine specimens are expected.

If this plan is not liked, the whole bed may be taken up at the second transplanting, and be placed in regular nursery rows, where they may be kept clean by horse cultivation. Whatever the plan, the removals should be planted in nursery rows, or planted at once in the belts or other situations where needed.

NASTY GREENHOUSES.

A clergyman of Chicago writes to the *Gardener's Monthly* upon greenhouses. We do not know what class of houses this divine is in the habit of visiting, certainly not the best public or private ones, scores of which might be named, as good as any in the land. We feel sorry for his losses, and advise the tender-lunged and delicate-fingered divine to seek first-class establishments in future when seeking plants. His plaint is as follows :

There is no milder word for it. They are superlatively and emphatically nasty. It is impossible to remain in them for half an hour without being poisoned. The air you can determine to be charged with spores that attack the human as they do the vegetable tissue. Green mould is thriving on pots and on brick walls, and on partly decayed boards. Pumps work in sloppy cor-

ners and rotten troughs. The plants are covered with fungi as well as innumerable insects. These latter do what they can to transform vegetable decay into animal life. The plants strive to use up the surplus of carbonic acid. But both work in vain. There is but one thought in the mind of the owner, to force the growth of as many plants as possible, and then send the withered, diseased things out into the pot windows and cases, or conservatories of our homes. The amount of disappointment is great and shameful. A single plant from such a carnival of filth, diseases all one's choice specimens, and the labor of years. I have no words to condemn the loathsome stuff that is shipped about every spring without regard to our pleasure and health. It has been a sore pecuniary loss to me, and a vexation of soul that nothing could compensate. There are thousands who give over the culture of plants "because they can not make them grow." The secret of failure lies in thrips and red spiders, and lice of every species. Out on nasty greenhouses!

FRUITS OF CENTRAL ASIA.

Eugene Schuyler, in writing of Turkistan, says that the gardens constitute the beauty of all the land. The long rows of Poplar and Elm trees, the vineyards, the dark foliage of the Pomegranate over the walls, transport one at once to the plains of Lombardy, or of Southern France. In the early spring the outskirts of the cities, and indeed the whole valley, are one mass of white and pink, with the bloom of Almond and Peach, of Cherry and Apple, of Apricot and Plum, which perfume the air for miles around. These gardens are the favorite dwelling-places in sum-

mer, and well they may be; nowhere are fruits more abundant, and of some varieties it can be said that nowhere are they better. The Apricots and Nectarines, I think, it would be impossible to surpass anywhere. These ripen in June, and from that time until winter, fruit and Melons are never lacking. Peaches, though smaller in size, are better in flavor than the best in England; but they are far surpassed by those of Delaware. The big blue Plums of Bukhara are celebrated all through Asia. The Cherries are mostly small and sour. The best Apples come either from Khiva or from Susak, to the north of Turkistan; but the small white Pears of Tashkent are excellent in their way. The Quince, as with us, is cultivated only for jams or marmalades, or for flavoring soup. Besides Watermelons, there are in common cultivation ten varieties of early Melons, and six varieties which ripen later, any of which would be a good addition to our gardens. In that hot climate they are particularly wholesome, and form one of the principal articles of food during summer. When a man is warm and thirsty, he thinks nothing of sitting down and finishing a couple of them. An acre of land, if properly prepared, would produce, in ordinary years, from two to three thousand, and in very good years twice as many. Of Grapes I noticed thirteen varieties, the most of them remarkably good. The Jews distill a kind of brandy from the Grapes, and the Russians have begun to make wine; but all the brandies which I have seen, both red and white, were harsh and strong, and far inferior to the wines of the Crimea or the Caucasus. Large quantities of fruit are dried, and are known in Russian commerce by the name of *irium* or kishmish, although the latter is only

properly applied to a certain kind of Grape. If the fruit were dried properly and carefully, it might become a very important article of trade, as it is naturally so sweet that it can be made into *confotes* and preserves without the addition of sugar.

LOCATIONS AND SOILS BEST FOR ORCHARDS.

F. R. Elliott says, in the *Ohio Farmer*, on this subject: Many and varied views on this subject have been presented by those who have given their record in the meetings of horticultural and pomological societies. The whole question, however, rests in the fact that the tree must have its roots in soil fitted to its wants, and where there is an undercurrent of moisture that can be taken up by the tap or lower roots in times of dry atmosphere and lack of moisture upon the surface.

Again, trees should not be situated in low valleys, or any confined air space, without an underground drainage, for here the cold is increased, and, added to the moisture of the valley, is often five to seven or ten degrees of Fahrenheit below that of the high ground adjoining. Some of the most valuable orchards known stand on elevated situations, with what is generally termed a thin, light, loamy soil, resting upon a basis of rock. In such positions the trees do not grow as rapidly as in deeper and richer soils, but they become fruitful sooner, and continue a long and productive life.

Thorough drainage in all cases is essential to healthy growth of tree and productiveness. Aspect is also a material circumstance, and should be modified by the climate and variety of fruit to be grown. A Peach orchard will bear warmth better than one of the hardy, firm wooded varieties of Ap-

ples, Pears, and Plums. It is well for the planter to study the position whenever he intends to plant, and ere deciding upon positions for certain trees, look over the surrounding country and note the success or failure of others who have gone before him in the work. According as this is adapted to the growth and character of the variety planted will be his success. It is not policy to stimulate trees into growing too luxuriantly by means of manures, but a healthy, steady, yearly growth, ripening the wood perfectly, forms the most permanent orchard.

MOLES AND THEIR WORM-STORES.

In a tract of meadow land in Norfolk, which lies below the level of a tidal river, and which is therefore preserved from being submerged by artificial embankments, the mole is not infrequent, although he is regarded by the occupiers with great disfavor. In addition to his ordinary sin of making the grass-land difficult to mow, he has an ugly trick of boring into the river walls; and, by loosening the sods which hold these walls together, imperils the walls themselves. Mole-catchers are therefore in great request, and a few minutes spent in company with one has taught me a lesson on the mole's history which was quite new to me. March is the mole's breeding month; and in preparation for the appearance of young ones stores of fresh meat, in the shape of worms, have been laid up under hills, larger than ordinary mole-hills, but in the open marsh, which an experienced eye readily recognizes. The mole-catcher (in whose company I found myself accidentally) is employed to poison moles, and the food in which he puts his poison is the common earth worm. Sooner than spend his time in digging for

these on the upland, he had come down to the marsh to rob the mole's larders, and he hit on these with the sagacity of a terrier sniffing at a rabbit's burrow, and did not open a hill in vain when I was with him. He chose the largest hills which were on the highest spots on the marsh, and opening one in my presence, he laid bare a round cavity, the sides of which were beaten hard by the mole, so as to prevent the worms from attempting to pierce their way out. Inside this there was nearly a quart of fine worms, quite free from any admixture of soil, each worm apparently tied up in a coil or knot, yet all alive. Upon being dragged out of the place in which they had been stored, the worms began to wriggle away; but the mole-catcher put them into the box he carried, and took away his prize. Is this habit of the mole generally known among naturalists? It seems to argue a reflective faculty, great as in the beaver, that the mole should prepare a prison in which worms can be kept alive.—*Field.*

HOW TO PREPARE BOTANICAL SPECIMENS.

Amateur botanists who propose roaming about the fields and forests this summer in quest of specimens for their herbaria, will be interested in the following extract from the *English Mechanic*, giving directions for the preservation of the plants: "Small plants should have the roots; and, if possible, obtain a specimen of each at different seasons—the young plants, in flower, and when the seed or fruit is nearly ripe. Get a quire of good thick blotting-paper, and a couple of large boards, and paper on which to mount your specimens. Let the boards be about the same size as the blotting-

paper. Demy paper of good quality is the best size for mounting. Arrange your plants between the sheets of blotting-paper—some plants require several thicknesses—and see that the leaves, etc., are properly disposed on the paper, as you will not be able to alter them when they are dry. It is a good plan to interpose a few sheets of cardboard, as it prevents one plant from spoiling another. When your drying paper is filled, put the whole between your boards and subject to pressure; take them out every twenty-four hours, and dry the paper, correcting any displacement as you go on; when dry they are ready for mounting. Don't gum or paste them to the paper. Cut short slips with a penknife under the stalks about one-eighth of an inch long. Take a piece of paper as broad as the slit is long, fold the paper and pass it over the stalk, and through the hole at the back, gum the ends on the back. I have seen every (I think) method of mounting, and this is certainly the neatest and cleanest. After this they must be painted with the following preservative solution: Corrosive sublimate, twenty grains; camphor, twenty grains; rectified spirits of wine, one ounce. This is a deadly poison, and should be handled very cautiously. Each sheet should have a neat label in the corner stating date and place of collection, and name of collector, also general habitat, specific and generic names, with natural order, etc. Without these particulars they will (as a collection) be perfectly valueless."

THE WATERCRESS TRADE IN PARIS.—Watercresses are now an important article of commerce in Paris, where their consumption has of late years increased enormously. Formerly, Paris depended for its watercresses on crops gather-

ed by night from brooks and ponds by persons who made it their business to traverse the country for some miles round the city in search of them, and they were, as a rule, of very inferior quality. In 1810, an officer of the French army, being at Erfuth, saw a number of ditches filled with watercresses, and conceived the idea of forming in the valley of Nonette, between Senlis and Chantilly, a similar cress-growing establishment conducted on a system. This led to a great development of cress culture and of the market for this plant. Other cress-growers started in business in the environs of Paris, and at the present time, at all seasons, more than thirty car-loads of cresses are sent into Paris daily, each load being worth about 300 francs, representing a consumption of about 9,000 francs' worth of cresses in the 24 hours, or more than 3,000,000 francs' (\$600,000) worth a year.—*Pall Mall Gaz.*

THE CURL IN PEACH LEAVES.—This disease injures the growth of the trees by reducing the extent of the foliage, and it sometimes becomes serious. It is caused by a parasitic fungus, which may be seen with a powerful microscope, first inside of the freshly opening leaves, and afterwards covering the surface. The best remedy is promoting vigorous growth. We see a statement in one of our exchanges, that coal ashes densely spread around the trees is a good remedy, which is doubtless true, so far as it promotes vigorous growth by acting as a useful mulch. Some years ago, when this disease prevailed, many of our trees were badly injured, but on one which stood near a pig pen, and was benefited by the manure, the leaves were free from it, the growth being strong, and the foliage of a deep green color.

Editorial Portfolio.

OUR FRONTISPIECE.

AQUARIUM AND FLORAL STAND.

The aquarium is so well known and its design understood, that little or no explanation concerning it or its uses is now necessary. Considered as a domestic ornament it is almost unsurpassable, and, while in its humblest form it presents a constant succession of beautiful and novel objects, so to all the accessories of artistic decoration, it adds the charm of life in some of its beautiful and curious developments, even if the proprietor of it should not have time or means to do more than keep in it some handsome gold and silver fish. The merest glimpse of water is always refreshing to the eye; its clear, cool aspect, the mingling of colors and forms; the peculiar growth of aquatic plants, and the still more curious forms and movements of any kind of aquatic animals, combine to form some delightful and ever-changing pictures. To the naturalist it opens up some new studies, and under circumstances almost as natural as those in which they were produced, we may study the habits and economy of the fish or other creatures even to the minutest particulars. The aquarium also exemplifies in an instructive manner the great system of compensation, which in nature preserves the equilibrium in animal and vegetable life. Animals take oxygen from the medium in which they live, and in return exhale carbonic acid. Vegetables, also, absorb oxygen gas, and give out carbon; but they also absorb the latter in greater quantity than they exhale it, and during their season of greatest activity throw off more oxygen than they take up at other times. Herein is the first

element in the management of an aquarium, which, to be successful, must contain a sufficient number of plants to supply the animals with atmosphere, and for respiration.

Should only gold and silver fish be put into an aquarium, it will prove remunerative as a mere amusement, as a means of some piscatorial study, or in conjunction with plants and flowers connected with it, as given in our illustration, a choice and refining ornament for the window of a parlor or drawing-room, or for the adornment of a conservatory. It should have a place in the home of every person of taste. Its comparative inexpensiveness fitting it for the dwellings of those whose means are not ample, and its adaptability for costly ornamentation, and for development to almost any extent of completeness, rendering it equally worthy the attention of those whose means enable them to gratify their love of elegance and refinement.

We need hardly refer to the beautiful effect of the combination of graceful and handsome flowers in pots at the bottom and sides of the stand, with the elegant form of the aquarium above and beside them. We may safely say, however, that scarcely any such attractive and interesting an object can be devised as this to set forth a parlor window to a satisfactory extent of pleasing decoration.

WORK FOR THE MONTH.

In the vegetable garden but very little is done in California throughout the summer, the cause of which is the fact that vegetables of all kinds can be procured as cheaply and of excellent quality, much better, in fact, than we find are raised in our private gardens. However, it is pleasant and agreeable

to have an opportunity of gathering them fresh from our own garden and of our own raising. This is a good time to plant Lettuce for autumn and winter use; also Beets, Rutabagas, etc., are very desirable, and if planted now and taken care of for a month or two, will take care of themselves after the first winter rains, and be useful and good throughout the whole winter season.

The lawn requires particular care during the month of August. Thorough watering and frequent cutting are very essential points in keeping the sod in good and uniform condition. Evergreens and deciduous ornamental trees outside of the lawn do not require more irrigating now. The Cypress, Thujas, and Acacias may be brought into proper and uniform shape by clipping off the rank shoots which have grown out of proportion. If compact and dense growth is desired, a general cutting back of the young growth will have the desired effect.

Roses have already made their summer growth; cut the leading branches back, work up the soil around them, and their new growth will produce an abundance of flowers during autumn and winter in our mild climate.

Hyacinths and Tulips may be taken up and stored away in a dry, cool, and airy place until winter or spring, when they may be planted again.

Dahlias should receive thorough watering and a good hoeing, to produce perfect flowers. Do not allow them to make much undergrowth or many side branches, or the flowers will be inferior.

Plant some Gladiolus bulbs for autumn flowering, and retain some for another planting in September or October for winter flowering.

Many of the Lilies have done flowering. If it be desirable to propagate them, let it be done now. This is done

by taking off the sound scales and setting them in sandy soil, so that about one-third of the scales are covered with soil.

If Mignonette, Candytuft, Stocks, and Pansies are desired to bloom during autumn and winter, the seed should be sown during the latter part of August.

In the greenhouse all rooted cuttings should be potted in small pots, shaded for a few days, and then placed close under glass. Hardy plants may be planted in the open ground, but this should be done carefully, as the young roots break very easily. Water well after planting, and if they can be shaded for a few days it would be a help to them.

Most of the time of our fruit-growers will now be taken up in gathering fruit, in packing and shipping to the market, in preserving and drying, and in preparing for wine making. Very little other work can be expected of them. In regard to picking and preparing fruit for market, but few seem to care in what condition it reaches their customers, and the result is that, particularly in San Francisco, three-fourths of all the fruit is of very inferior quality and in bad condition. Fruit-growers may imagine that this is immaterial to them, as long as they realize a fair profit; but we are inclined to believe that they are likely to be the greatest sufferers. It is true that some fruits have to be picked and shipped before they are fully ripe, in order to arrive at their destination in good condition; but this is often carried to extremes, fruit being offered for sale in this market which is positively unfit to eat. The law should provide a fruit inspector, as it does for meat inspectors; it is certainly very deficient in this respect. We hope most sincerely that at least some of our

intelligent fruit growers will improve on their present system, and give us an opportunity to appreciate their products; until such is the case, many will do without fruits altogether. Notwithstanding what we have now said, however, on this subject, we are free to confess that, upon the whole, there has arisen some improvement in this respect within the last few years, and that most of the fruits this year in the market are riper and better put up than they used to be.

EXOTIC GARDENS—CRYSTAL PAVILION CONCERTS.

About a year ago the enterprising proprietors and florists of these gardens erected, for the advancement of their business, numerous plant and propagating houses on the greater portion of a block on Mission Street, directly opposite Woodward's Gardens. Among these extensive glass structures are three very large, lofty, and gracefully arched conservatories, in which were planted a large quantity of the finest and choicest varieties of exotic, tropical, and semi-tropical plants, with handsome and picturesque rockeries, fountains, ponds for aquatic plants, etc. The *tout ensemble* was highly interesting and imposing to all lovers of these objects and beauties of the vegetable world. Many persons visited these enchanting scenes and were charmed with their arrangement and the beautiful specimens of the floral kingdom, which were so skillfully disposed over the large space which was occupied by these lovely achievements of art as well as of natural productions. The great dryness of a portion of last fall and winter, with the depression in general business, rendered the sales in the horticultural line quite inadequate to the capital invested by these gentlemen in their occupation,

consequently a thought suggested itself to them lately, that the main building, with suitable alterations and improvements, might be utilized as a place for public recreation and amusement, in the shape of a promenade, together with the employment of the highest musical talent, in the character of concerts. These concerts have been now carried on for several weeks, and, we are happy to say, attended with so much public patronage as to justify the hope that the energetic and spirited owners of this establishment may in process of time be well and amply remunerated for their outlay in the furnishing and ornamentation of these delightful grounds for day and evening promenading, and the refining influence of excellent music. Whatever serves to heighten our purest enjoyments, and produces a spiritualizing effect on our nature and habits, and adds fresh graces to our domestic and moral life, must be worthy of encouragement and culture. The last ten or twelve years on this coast and in this city have been marked by such an encouraging progress in æsthetics as to be worthy of designation as a new era in our social life. Painting, music, sculpture, horticulture, have made such advances here as to warrant a quick march of the popular mind in the appreciation of beauty, and the promotion of every means of intellectual and moral refinement. There is a vast distance, of course, to travel before the culminating point in these respects can be attained, but we are surely, we trust, in the ascent toward it, and our course is becoming steadier and our light purer as we rise. Let our conversation shape itself to such ennobling scenes as these Exotic Gardens and the ennobling music in them present to us, and let our pleasures take a tone from them to im-

prove our moral sentiments, and acquire a poetic grace that shall reflect again upon both head and heart. The mark of our progress is seen in our love for plants, flowers, rockeries furnished with suitable plants, tree and other ferns, etc., all the beauties and wonders, indeed, of vegetation, garden ornaments, and the varied strains of exalting music "from grave to gay, from lively to severe"—all these are the beads of our rosary of homage to the Spirit of Beauty and Moral Worth. All this is not merely ideal creation; our life is a guarantee of our national greatness, and as long as we shall continue to surround that life with emblems and suggestions of higher things, so long will the highest teachings of knowledge, elegance, and virtue be attainable by us. Our pleasures and pursuits have as powerful an influence on our national character as the precepts of sages at our seats of learning; and the simple objects that afford recreation for our hours of leisure may prove worthy advocates of morality and religion. In the contemplation of the wonders of nature, and the humanizing effects of music, the intellect and moral nature must advance toward perfection, just as Ingomar and all his bandit savages are humanized by the presence among them of the chaste Parthenia.

FRUIT CULTIVATION AND REPORT OF FRUIT AND VEGETABLE MARKET.

To have large and fine Apples and Pears, an occasional, or when necessary, an annual top-dressing with manure, applied just before our rainy season, is found, on many soils in our State, to be just the thing. On soils such as we have in many places, however, naturally very rich and deep, this is not necessary, and will not be so, probably,

for a number of years to come. Where manure is scarce some kind of green crops plowed under are next best. Another plan, perhaps, and which we have seen but very seldom adopted here, is to sow rye in the autumn; the young crop affording a fine green carpet soon after our rains in November or December, and plowed under about that time it enriches the land. This can be repeated every year or every other year without any difficulty, or alfalfa will answer the same good purpose, after it has been cut a year or two. Where these different modes are not required for Apple or standard Pear trees, they will be at any rate useful and important for all dwarfs. Pruning should be practiced only on hardy trees, such as the Apple, and it should be performed to a moderate extent at a time on orchard trees. We never recommend heavy cutting away. It is better to allow a tree to remain a little deformed, lop-sided, or rather dense-headed for a year or two, till the work can be accomplished gradually. (These remarks do not apply to young nursery trees.) A good European cultivator has given in substance the following good directions: In sawing off a limb, set the saw below and cut up part way, and then cut from above to meet it. This prevents the limb from tearing away the bark in falling. Or, a better way—saw off the limb freely, leaving a stump about a foot long, then holding this stump in the left hand, cut off neatly and carefully. Cut as closely as may be done without making too large a wound; like the skillful surgeon, save skin. Never leave a projecting stump, which will disfigure the tree for many years before it is grown over. Use sharp tools of the best steel, thus saving much labor, leaving a smooth face, and cutting more accurately just where

you want to. Nothing is better than one or two coats of oil-paint for covering the wound ; and if it is ash or slate color, or having about the same shade as the bark, the orchard will not appear defaced by the operation. In pruning Peach trees, cut back only to keep the head of the tree in proportion, and within reaching distance of a seven-foot ladder. Any tendency to grow long, straggling branches is overcome by thinning the branches to the point of keeping an open, well-ventilated top. To prevent a mass of feeble growth from filling the top, some summer pruning is generally necessary, but nothing seems to us more important for the health and vigor of the trees, but especially for fine, large fruit, and good prices, than thinning the crop late in the spring or early in the summer.

We consider one of the greatest defects and blunders in our markets in the sale of fruits, as in other farm or horticultural products, and injurious to our commission merchants, is dishonest packing among cultivators, and if at least one-third of the poorest produce were thrown out and left at home, and only two-thirds of the best, well put up, with the owner's name in broad, plain letters, they would bring more money than the whole, and the cost of freight, package, etc., on all this worthless stuff would be avoided.

As regards fruit for health—an absence of fruits implies doctors' bills at all seasons of the year. We have urged continually in this article on the markets that the importance of a regular supply of ripe and the best fruit to prevent disease can not be over-estimated. The best medicine chest which an emigrating family can carry to a newly settled country is a box of early bearing fruit trees, Currant, Raspberry

bushes, and Strawberry plants, etc. Even plenty of dried fruit to last them the first and second summer before they can raise their own fruit, will enable them to keep healthy, and ward off disease. Many emigrants have informed us that so long as they could have fresh or even dried fruit, they have been free from all diseases resulting from malaria.

We would here also recommend to farmers and others the cultivation of vegetables. It were foolishness to attempt to prove that a vegetable garden is a necessity in most cases in the country, and also sometimes in towns, or that a large variety of them for the table is a luxury and source of health and of great gustatory pleasure, for that is acknowledged by every one. Yet we have been much struck when visiting or traveling in the country, when noting the very limited supply and the small number of varieties grown by our country friends, especially farmers. Even when there was a tolerable supply, the kinds were of such inferior quality that half the pleasure of the table was done away with. Lettuces that were as tough as a drum-head, Tomatoes as empty and tough as an India-rubber ball, gnarly Cucumbers, and Peas that reminded one of saw-dust or dry meal. To forward this beneficial object—the cultivation of vegetables—we here highly recommend a small work lately published, viz.: "The Vegetable Garden." A complete guide to the cultivation of vegetables; containing thorough instructions for sowing, planting, and cultivating all kinds of vegetables; with plain directions for preparing, manuring, and tilling the soil to suit each plant; including, also, a summary of the work to be done in a vegetable garden during each month of the year.

By James Hogg. To be had at A. Roman's, Montgomery Street, S. F. This work although more adapted, of course, for the East than for this coast, yet contains the principles and many points useful and applicable for us, with considerable modifications, according to difference of climate, frost, temperature, soil, seasons, etc.

At the end of last month (June) there were additions to the many sorts of fruits and vegetables in market, viz: Watermelons and Cantaloupes. Some class these fruits as vegetables, and others as pomological articles. About the same time Peaches came forward very freely from the Sacramento River. This crop will probably, this year, be rather above an average one, notwithstanding the effect of the severe hot spell, and many inferior kinds in some portions of the State. These injured varieties will be mostly used for drying, which will be resorted to more largely here now every year, on account of the facilities of the Alden and other processes. At this period also (the end of June), Strawberries, Blackberries, Apples, Plums, and Pears were all more plentiful. Bartlett Pears also made their appearance, but were too green to meet with much demand. This valuable Pear has the quality of becoming gradually ripe, and seldom rots, and is good when even considerably over ripe and very yellow. It preserves its juiciness, too, admirably to the very last. Apricots were scarce, for the reason that the crop in the early localities was about all in, while that of the bay counties had scarcely commenced to arrive. Red Astrachan, Red June, and Early Harvest Apples were plentiful at \$1.25 to \$1.75, and Bloodgood and Dearborn's Seedling Pears at \$1.50 to \$1.75 per box, delivered. The market was more plentifully supplied with

Okra, Peppers, and Egg Plant, and quotations showed a corresponding reduction. A notable advance, it will be seen, occurred in String Beans in consequence of light arrivals. Potatoes were very plentiful, and good to choice. Early Rose were sold at \$1.25 to \$1.75 per 100 lbs., delivered.

In the first week of July vegetables of all descriptions were abundant, and quotations in several instances were lower. Figs were less plentiful, with a moderate demand at a sharp advance. Strawberries were still abundant, but other fruits being plentiful they were not in much demand.

In the middle of July the market was booming, in the language of the *Commercial Herald*, and there was a ready sale for everything offered, excepting Strawberries and Apricots. A few Grapes appeared, but they wanted, so early, the sweetness liked by most persons. Cherries from Oregon were a feature of the market. They were mostly the Napoleon Bigarreau, and were large even for that gigantic sort. It is thought that the crop of Tomatoes will be light.

At the end of July the fruit stalls of the San Francisco retail markets presented a display that for variety and quality of produce, few cities can equal, and none surpass. The assortment included the early spring varieties, such as Currants, Strawberries, and Cherries, while many of the later kinds had already made their appearance. It is true that Cherries and Currants were about to disappear for the season, and the arrivals of Peaches were on the decline, yet the better varieties of Grapes, Pears, and Apples were only just beginning to come forward. Strawberries, Raspberries, Blackberries, Nectarines, Plums, and Apricots were plentiful and cheap. Apples were not

very abundant, nor are they expected to be during the season, as the crop is reported short throughout the State. A good to choice article sold by the single box at \$1.25 to \$2.50, delivered. Peaches by the basket advanced to \$1 to \$1.50. Nectarines and Plums sold by the basket at \$1.25 to \$1.75. The fine white Nectarines now in market are preferred to Peaches for canning by many housekeepers, as the trouble of peeling them is saved. The Nectarine is really only a Peach with a smooth skin. California Oranges and Lemons, for the first time in months, were about out of market. The first shipment was received in September, and since that time the supply has been continuous. Tahiti Oranges were scarce, but the deficiency was not noticed amid the abundance of other fruits. The Australian steamer was just at hand with 837 bunches of Bananas from Honolulu.

In vegetables there was very little change to report, though Okra, Green Corn, and Cantaloupes were a little more plentiful and cheaper. Potatoes were scarce and firm, good to choice selling by the single sack, delivered, at \$2 to \$2.25 per 100 pounds.

THE Twelfth Industrial Exhibition under the auspices of the Mechanics' Institute will open on the 7th of August, for one month. Only one premium is to be given in a class, and care is to be taken to make the awards just and valuable. In cases where the merits of competing machines can be ascertained by tests, they will be applied. The management of the premiums will never give satisfaction to the unsuccessful contestants, but the plan now adopted seems to be an improvement on that of other years.

Editorial Gleanings.

AN occasional change of soil is highly beneficial to flowers in pots. There is nothing better than surface soil from a thick scrub, taken off about two inches deep, and thrown into a heap with about one-sixth part old hot-bed manure to partially decay. In addition to this staple item, smaller quantities of different matters should be gathered together for peculiar cases or particular plants. Peat, for instance, will be found very useful for many kinds of plants. This is not, as is often supposed, mere black sand, but a spongy, fibrous substance from the surface of swamps and boggy wastes. Sand must be collected sharp and clean; the washings from ditches are as good as anything. Leaf mold is best got already well decayed from the scrubs. That which one makes for himself from rotten leaves is seldom good for anything; it is always sour, and seems indigestible to vegetation. A load or so of well decayed cow manure is a good thing for the gardener to have by him, as those plants that want cool soil prefer it to any other manure.

HEALTHFULNESS OF ASPARAGUS. — It is reported, on good authority, that those who suffer from rheumatism are cured in a few days by feeding on Asparagus, while even chronic cases are much relieved, especially if they avoid all acids whether in food or drink. The Jerusalem Artichoke is reported to have a similar effect in relieving rheumatism. Most plants which grow naturally near the sea-coast contain more or less iodine, and in all rheumatic complaints iodine has long been a favorite remedy. Many of the patent nostrums for this disease nominally devised merely for philanthropic purposes, but sold at an

exorbitant figure, consist simply of a few cents' worth of iodine in solution. Care should be taken against over-doses of it, however, as it is then dangerous, affecting especially the eye.

HORTICULTURE IN JAPAN.—In a recent letter the Hon. Horace Capron says: Oranges, Limes, Lemons, Grapes, Persimmons, Pears, and some Blackberries, all very inferior (excepting one variety of Orange, one of Grape, and several of Persimmons), were all that they had. They have really wonderful skill in dwarfing fruit-trees. All kinds are dwarfed without diminishing the size of the fruit. I think our fruit-growers could learn much from the Japanese in this matter. I have seen acres of Pear trees not more than four to six feet high. These trees were set out in rows, about the same distance intervening. At the height they want the trees to grow, say four to six feet, a lattice-work of small bamboo poles is built over the whole orchard. As soon as the shoots of the Pear tree grow to this lattice, they are trained to run along it horizontally, and are confined to the poles by hempen strings. When first seen it looks like a grapery. The wind can not shake the tree to disturb either the flowers or the fruits. The most perfect system of training and control over the new growth is in use, so that the sap of the tree, instead of being consumed in the production of a superabundant growth of new shoots, is directed to the growth and protection of the fruit.

CUTTING BACK YOUNG TREES.—We observe that mistakes are still made by some who set young trees, and who are nevertheless aware of the importance of reducing the heads to correspond with the unavoidable reduction of the

roots in taking up. The trees are set out, and the cutting back is put off till the new leaves are partly out. To do it then will do more harm than good. If not performed before the buds open, it should be entirely omitted. Growth is always checked by pruning when the leaves are opening or expanded. We have seen good trees nearly ruined in this way. If the operation is not already done, let all the roots and leaves remain, and make up for the neglect by keeping the surface of the soil for several feet about the tree constantly mellow, mulching with manure as hot weather approaches, and if the weather should be very hot and dry, daily showering the leaves, branches, and stem. This showering should be regular, not occasional. There is a difference in different kinds of trees, as to the amount of injury caused by cutting back too late. Peach trees will withstand the effects of such treatment better than most kinds; apple trees not so well; cherry trees worst of all—we have seen them actually killed by it.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING JULY 31ST, 1877.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 18 Market Street.)

BAROMETER.

Mean height at 9 A. M.	30.02 in.
do 12 M.	30.02
do 3 P. M.	30.02
do 6 P. M.	30.01
Highest point on the 17th at 3 P. M.	30.12
Lowest point on the 15th at 9 P. M.	29.90

THERMOMETER.

<i>(With north exposure and free from reflected heat.)</i>	
Mean height at 9 A. M.	69°
do 12 M.	73°
do 3 P. M.	73°
do 6 P. M.	69°
Highest point on the 12th at 12 M.	82°
Lowest point on the 2d at 6 P. M.	63°

SELF-REGISTERING THERMOMETER.

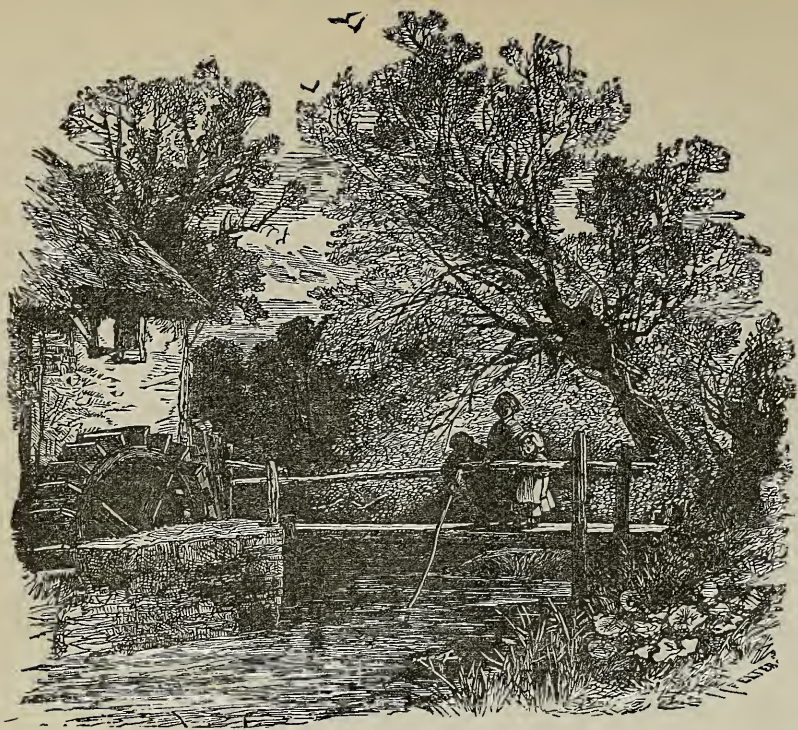
Mean height during the night	57°
Highest point at sunrise on the 16th	66°
Lowest point at sunrise on the 6th	52°

WINDS.

North-east on 1 day; south and south-east on 5 days; west on 25 days.

WEATHER.

Clear all day 14 days; cloudy on 3 days; variable on 14 days.



JUVENILE ANGLER.



A TROPICAL SCENE.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. VII. SAN FRANCISCO, SEPTEMBER, 1877.

No. 9.

NOTES FROM A GREENHOUSE.—NO. 3.

BY CHAS. H. SHINN, AT NILES.

This month the Cyclamens begin to show their delicate flowers with the reflexing, tinted petals and rosy beak, shining above the graceful, cordate leaves. "Just the old-fashioned American Cowslip," says an over-hasty and troublesome visitor, who has been denouncing double flowers as contrary to Nature, and inquires, spitefully, why the Smilax has no showy blossoms. Greenhouses have all manner of visitors, and the term "troublesome" applies also to the fat, coarse-grained person known, I fear, everywhere, who does not know a Pink from a Cabbage, but is perfectly willing to snip off sly cuttings, or drop an available plant in the capacious pocket, so virtuously concealed. Alas! that people should ever steal flowers, whose mute faces must forever reproach them.

Still it is delightful, and often amusing, to take people around, for a great deal of human nature is developed in the transit. There is the busy merchant, looking for a basket plant to hang in the bay-window; he thinks flowers, as a rule, are foolishness, but

show him that Bluebell yonder, and he is a boy in the bonnie Scottish woods. Here, too, is the modest maiden, just tiptoeing in on her way to school, to see if she may have a Rose and a sprig of Geranium. And now and then, on days to be marked with a Rosebud memory, some friend who knows and loves plants in a cheerful, embracing fashion, drops in with an armful of bright ideas, with questions, criticism, praise, and that freemasonry of trade, which, when carried to extreme, we call "shop."

I have just had a visitor who exemplifies the ignorance among people on the subject of plants and plant culture. This very worthy lady told me, with a world of trouble in her eyes, that she hardly knew how to get plants out of the pots, but had thought some of greasing the inside of the pots before she used them! She will do to match a well-dressed lady at Woodward's, whom I heard telling her companion that the glowing Azaleas, then in their fullest pride, were Petunias! The horticultural journals must increase their circulation, for they are real missionaries.

A few weeks ago I noticed that the

earth in a certain pot was cracking, and a pair of dark green stems were mounting toward the light. There is a story of blighted expectations connected with those little spires. From boyhood my dreams have clung about the tropics, with their mellow skies, placid seas, and coral isles; their gorgeous birds, deadly reptiles, and wierd, tangled forests; but, most of all, their strange orchids and peculiar fruits. I bought experience with my first five-cent pieces, by making sly purchases of supposedly choice fruits. A stale Pine-apple, a spoilt Cocoanut, and a speckled Banana turned out so badly that I abandoned a pet plan of finding a desert island. This summer I saw a box of smooth, yellow, bean-shaped fruit on a dealer's stand, and, inquiring, was told that they were Isthmus Mangoes! In my childish fancy Mangoes and Mangroves were rather confused; I had a dim idea that oysters clung to the twisted roots, and fruit of Sybaritic flavor grew among the glossy leaves. I yielded; I bought—I am ashamed to say how many. I walked down the street with an air of superiority to the common herd, none of whom had a package of genuine Mangoes. I went on the ferry-boat, and sought a secluded corner. It is quite impossible to speak of what followed. The taste and smell of turpentine and other vicious drugs are concentrated in the Mango to such an extent that it is not an advisable article of food. I have since learned that it should be peeled and laid in water to remove these flavors, but on this occasion I dropped them in the bay, only keeping two for planting. They came up soon, have grown thriftily, and promise to be so ornamental that I have forgiven them.

The use of camphor in assisting the germination of seed, spoken of in the

CALIFORNIA HORTICULTURIST for February, 1876, is well worthy the attention of nurserymen. One ounce of camphor in a gallon of water makes a strong enough solution, in which the seeds, tied up in a bit of cloth, may be soaked for a period not exceeding three hours, then drained off, mixed with a little fine sand to facilitate sowing, and planted immediately. My best success with importations of Acacia seed has been by pouring hot water over them first, and then using the camphor. The advantage of this sort of thing is that you can get your seed boxes out of the way quicker, and so have the room for something else.

September is the month for starting annuals for winter decoration of the greenhouse, and the sunny windows of the dwelling. The clusters of dwarf Stock, the butterfly-like blossoms of Schizanthus, the beautifully mottled Salpiglossis, and the blotched Mimulus are ornaments to any greenhouse. Even if you have Camellias, Azaleas, a host of Fuchsias, Begonias, Bouvardias, Catalonias, Jasmine, Stevia, Heliotrope, double Violets, and other favorites, for winter, the space you give to the bright annuals will be well occupied, for they add a peculiar grace to the bouquet. Collinsii Bicolor, a California annual, is very charming massed in a small box or pan.

I am still busy over my cutting box, which, like the purse of Fortunatus, is never empty. Among Pelargoniums I have been increasing my stock of oriental and unique; among Fuchsias, of Leroy, Princess Alice, Roderick Dhu, and Arabella Improved, all favorites. Some seedling Fuchsias, raised three years ago, are under trial, and one is a pretty good double, but it is too soon to decide. If all lovers of flowers experimented a little more with seedlings

they would gain a great deal of pleasure, and perhaps be rewarded with a genuine improvement now and then. Scarcely one of our flowers has, as the French express it, "said its last word." The Gladioli want more leaves; the Canna more blossoms; the Petunia more substance. Many flowers might have more fragrance, for fragrance varies greatly in seedlings of the same species; and some flowers now dull in hue might be increased in brilliancy. The world ought not to come to an end until man, toiling, yet hopeful, has reclaimed the deserts that his wars have made, and planted everywhere a new Eden, glowing and fruitful, where his children may sing the songs of peace, and write the fair, large poetry of the future.

CONSTRUCTION OF EPERGNES AND BOUQUETS.

BY JAMES H. PARK.

With the earliest civilization of our race, flowers, no doubt, began to be cherished and employed for decorative purposes, and it is one of the most natural things to imagine that even the earliest savages, especially of the softer sex, would gather the wild flowers of the woods and prairies, and preserve them in some way in their rude caves or huts to gratify their senses of both sight and smelling; nor is their arrangement in tasty bouquets entirely a modern art, for history as well as poetry informs us that "sweet nosegays and posies" were some of the favorite embellishments of beauty both in society and in the domestic hearth, although the practices of floral decoration in all their enchanting forms are of comparatively recent and marvelous growth among us.

A great many people decry the ar-

tificial arrangement of flowers, but how shall we otherwise use them to advantage? The moment we begin to tie them together we leave nature, and ought to do so only to study art. In their simplest arrangement, form and color must be studied to produce the best effect, and whoever best accomplishes this will surely succeed in displaying his flowers to the best advantage.

Bouquet making is (or at least ought to be) the art of arranging flowers. Who has not seen bunches of beautiful flowers cut from the garden and tied up in the least artistic fashion with the most stupid result? And who that has attended fashionable weddings or parties has not occasionally seen a large bouquet or basket in which the quantity of flowers was its only merit, where a mass of flowers were muddled together in a most incongruous fashion, equally removed from both nature and art? Nor is this fault that of the tyro in bouquet making only; many who practice it as an occupation have not learned the first principles of tasteful arrangement. Yet great allowance may be made for the bouquet makers, when we consider how much like labor their work becomes. Any one, trying always to execute this work with taste, would scarcely accomplish the amount of work required of him in any thriving establishment, a great part of which is of necessity done hurriedly; and as the variety of flowers is so great and constantly changing with the seasons, and their colors so varied, it is only by trying them in various combinations that the best results can be obtained. Few are willing to pay for this kind of work. Many a gardener, who is not too well occupied in winter, might make a pleasing study of this little art, and thereby add to his pleasure and

profit, as well as those of his employers.

Probably the simplest, easiest, and commonly the most desirable, method of using cut flowers is arranging them in vases. The more loose and unconfused the better. Crowding is particularly to be avoided, and to accomplish this readily a good base of greens is required, to keep the flowers apart. This filling up is a very important part in all bouquet making, and the neglect of it is the greatest stumbling-block of the uninitiated. Spiked and drooping flowers, with branches and sprays of delicate green, are indispensable to the grace and beauty of a vase bouquet. To preserve the individuality of flowers, which is of the greatest importance, the placing those of similar size and form together ought to be avoided. Thus Heliotrope, Stevia, Eupatorium, Alyssum, when combined, lose their distinctive beauty; but, if placed in juxtaposition to larger flowers, and those of other forms, their beauty is heightened by contrast. It may be stated as a rule, that small flowers should not be massed together. Large flowers with green leaves or branches may be used to advantage alone, but a judicious contrast of forms is most effective.

Nothing is so strikingly beautiful on a refreshment table as a handsome centre-piece of flowers. All the airy castles of the confectioner are passed over by the eye, which is at once arrested and refreshed by the brilliant beauty of the products of the garden and conservatory; and we wonder how any person of taste, who possesses the means, should ever fail to have flowers on his table when entertaining friends. Considering the effect, flowers on the table, like plants in the garden, are certainly the cheapest of ornaments. There are those who would have noth-

ing upon their table but what they can eat and drink; like a gentleman who once employed the writer of this to lay out a new garden, and objected to having roses planted by the fences, saying very earnestly, "Ah, yes! I suppose they are very pretty, but then, you see, we couldn't get anything to eat from them. Guess we won't have any of them things." Luckily for the well-being of poor humanity such desperately practical men are not very numerous. An epergne filled with flowers forms the most effective of table bouquets. For a large dinner table this bouquet holder ought to be from two to three feet in height, with three, four, or five branches, and if the table is very large, a small epergne at each end will add to the effect. For a less pretentious table an epergne twelve to eighteen inches in height may be used to equal advantage. The superiority of an epergne consists in its raising the flowers to a height sufficient to gain their full effect, whereas forms of flowers built from a lower vase lose much by the interference of surrounding dishes. With a handsome epergne and the flowers arranged in nearly semi-circular outline, pointed with two or more handsome flower-spikes, and diversified with here and there a fine fern leaf and other sprays of lovely green, with a few fine rosebuds and spikelets of heath, acacia, or similarly formed flowers, projecting from the main body to give ease and grace, and with a profusion of bright green or variegated foliage and flowers in drooping sprays around, the best results may be attained. For such a bouquet a fair proportion of large flowers is indispensable, and an excess of projecting plants is to be avoided, as confusing. Table bouquets made in the fashion of the confectioner's stiff pyramids of maccaronies, are wretched

decorations, and very discreditable to all connected with them. Better, a thousand times, to have half the quantity of flowers decently arranged.

After form, the most important point in bouquet making is the arrangement of colors. The incongruous mixture of these in a great measure destroys the effect of the finest flowers, while the more delicately the coloring is blended and the more strikingly contrasted, the more perfect and pleasing is the effect. Let any one who doubts this compare a bouquet of the best flowers in which many colors are freely used, with one made of pink shading delicately from the centre to blush and white, or *vice versa*, and with a few tiny points of bright scarlet or violet tastefully set amid the white.

The arrangement of colors in simple geometrical forms is greatly preferable to a succession of distinct rings in a bouquet. The ribbon pattern is very pretty in a flower bed, but in very questionable taste in bouquet making; a bordering of white, blue, or pink, may be generally used with good effect. Handsome leaves of the geranium or (the latter is preferable for its brightness and durability) alternating with fine sprays of green, delicate flower scapes, or spikelets of heaths, form a fitting edging for a hand bouquet. In filling out a hand bouquet, half-dried moss is preferable to bouquet green, as it can be used more readily to keep the flowers apart without so much increase of weight and stem; a light backing of green, concave underneath, finishes the bouquet.

THERE are Fig trees in Pensacola known by living men to be more than sixty years old, but how much older is not known. They still yield profusely, and still are in full vigor.

FLORA OF AUSTRALIA, TASMANIA, AND NEW HOLLAND.

BY A VISITOR.

We next look out very carefully for something like a Honeysuckle, but in vain; till at last the so-called Honeysuckle-tree is pointed out to us, which proves after all to be one of a genus of the Protea tribe called Banksia. The blossoms of the Banksias are not at all like Honeysuckles (except, perhaps, a very little in one species); but in this species (*Banksia latifolia*) the tubular blossoms form a kind of cone, "much the size and shape of a large teazle," and are of a greenish yellow; the general form of the tree, which grows to the height of about thirty feet, "may be pretty well represented by a grenadier's cap set on a stick. The foliage is thick and solid-looking, the trees often forming fine groups in the open landscape; as, when several grow together, their formal outline is not preserved." When growing in groups they are valuable from the dense shade they afford; the leaves, however, are rather small, and are generally of a dull rusty olive green. Shade from the trees is not always to be found in Australia, as the leaves, instead of growing horizontally as the American trees, often hang perpendicularly like bundles of rags—going by the rule of contrary, as most things there are said to do. These "Honeysuckles without odor" are destitute of scent, except at the time when they shed their pollen, when a very faint one may be perceived.

But the trees we feel most curious to see are the "Cherries with the stones outside;" there is something so very odd in the idea! That they ever came to be called so is more odd still, for they really do not look much like Cherries, nor have they the slightest con-

nection with them. The fruit, both in size and appearance, is very much like the pulpy red berries of the Yew tree; only instead of the black seed lying nearly concealed within the berry, it projects "out of the fruit," to which it fits in closely, like a stopper in the mouth of a bottle. This funereal-looking tree, the proper name of which is *Exocarpus*, is in fact nearly allied to the Yew, and the character of the foliage is extremely similar.

Among the most remarkable trees of Australia are the *Kingia*, one of the Rush family (*Juncaceae*), and the *Zanthorrhoea*, which belongs to the family of Lilies, both of which go commonly by the name of "Grass-trees." There are points of similarity between the two trees, only to be appreciated by scientific botanists, which are said to form a connecting link between Rushes and Lilies. The *Zanthorrhoea* has been poetically called "the sceptre of Flora" (rather an uncouth-looking one, it must be owned), from the manner in which the long cylindrical spikes of densely compacted flowers, resembling Bull-rushes, rise out of the tufts of long, wiry foliage which surmount the clumsy stem—the stem and the foliage together looking something like a caricature of a Palm tree.

Most of the Australian trees are evergreens. Among the few deciduous ones, the White Cedar (*Melia azedarach*) may be mentioned as an exception; the very rarity of the fall of the leaf imparts an interest to the tree. But it is the shrubs, rather than the trees, which are the chief beauty of Australian vegetation, so that, while "a perpetual flower garden is formed by these, there is not a single scene of which a painter could make a landscape, without greatly disguising the true character of the trees."

Though Australia is almost without any kind of native fruit, the soil and climate are so congenial to European fruit trees, that those which have been introduced seem to thrive as well or better there than in their native land, and the vine is said to have there found, like in California, a second home.

It would be perfectly useless, as well as impossible in so small a space, to enumerate a long list of Australian plants; but it is interesting to know that among numerous unknown ones, it also contains the names of several of which we have species at home, though they form but a small proportion of the whole. For instance, there are two different kinds of Beech (*Fagus*), a Dock-sorrel (*Rumex*), a Plantain (*Plantago*), a Skull-cap (*Scutellaria*), and an Eye-bright (*Euphrasia*). In addition to these we find the familiar names of Speedwell (*Veronica*), Nightshade (*Solanum*), Scorpion-grass (*Myosotis*), Gentian (*Gentiana*), Avens (*Geum*), Sundew (*Drosera*), Crowfoot (*Ranunculus*), and a flower which in appearance is almost the same as a Daisy (but belonging to a different branch of the composite family), called *Vittadinia*. The species of the flowers indeed may not be the same as ours, but there would be sufficient resemblance to raise a thought of home when met with in that distant land.

The character of vegetation in the neighboring island of Tasmania corresponds in a great measure with that of Australia. It is a beautiful country; its features varied by mountains and valleys, by forests and heath-land. Here again we find the Gum tree (*Eucalyptus*); one species which grows here is the most elegant of the family, called the Weeping Gum tree; it is "large and lofty, with dense glossy

foliage, and finely grown, having something the character of a Portugal Laurel grown into a forest tree." The Proteas abound here also — the so-called Honeysuckle trees forming a marked feature in the landscape.

There is a very beautiful and very common tree too, which goes by the name of the Wattle tree, the wood being very much used in wattling cattle. It is an Acacia — one of the Mimosa tribe, and has therefore the peculiar character which distinguishes all that tribe — of a leguminous seed-vessel, without having papilionaceous blossoms. These Acacias are tall, elegant trees from twenty to forty feet high, clothed with "delicate Sensitive-plant foliage," feathery and pendulous, but thick, and they are covered from the very summit to the bending branches that sweep the ground, with bright canary-colored blossoms. When standing underneath, the appearance of the tree overhead is "like a canopy of gold," and the rich and almost overpowering scent is "like the hawthorn or meadow sweet." These are *true* Acacias; the trees that go by that name in England and the eastern portion of America, with pinkish-white papilionaceous blossoms, are called by botanists false Acacias, because they want the distinctive mark above named. They are, properly speaking, Robinias. The character of many of the true Acacia blossoms may be seen in the little greenhouse Mimosa, in which a number of separate flowers are set close together, the long projecting stamens forming a globular head; in others they grow in a number of little separate tufts. These Australian Acacias have been much introduced into California of late years, and form a lovely addition to the shrubbery here.

(To be Continued.)

GREAT VALUE OF APPLES.

Of all fruits the Apple takes the chief rank. One of its greatest advantages is its almost universal adaptation to all climates. It requires, also, no specially good soil, and in unfavorable weather yields a proportionably larger return for the attention bestowed upon it than any other fruit. Another great advantage of the Apple is the ease with which it is preserved. Of all fruits, too, it is the most nutritious, being the richest of all in sugar and albumen.

Apples should be stored in a dry and well ventilated room, to which the sunlight is also admitted, and should be placed in layers as loosely together as possible. It is also well to cover them with fine-cut straw. Where light is excluded, the air becomes impure, and the fruit, in consequence, is injured. By the careful observation of these suggestions, Apples may be well preserved until the reappearance of berries and cherries in the spring; and this is, indeed, an important consideration with those who make fruits among their leading articles of diet. The firmness and consistency of Apples also enables them to be transported with less injury than most other fruits. With a few Apples in the pocket one may make a considerable journey, and no food is more suitable for excursions upon foot.

The juiciest Apples are the most digestible, but the mealy sorts are nevertheless to be preferred, since they are more nutritious, and more fully answer all the above-mentioned requirements. A good Apple is digested in about one hour and a half, and, with wheat, constitutes the best possible food, and forms the most excellent body tissue. Rightly, then, is the Apple regarded by vegetarians as one of the noblest of all foods. Its nutritious value is un-

questionable. It does not, indeed, contain as high a percentage of the chemical elements of nutrition as wheat, but it supplies what the wheat lacks, and herein lies its greatest value. As wheat is the chief of grain, so is the the Apple the chief of fruits.

The most important elements found in the Apple, and, indeed, also, in greater or less proportion, in all other fruits, are as follows: Sugar, malic acid, tannic acid, albumen, gluten, pectin, fibrous starch, traces of free salts, and water, which latter constitutes three-fourths of the entire bulk. The skin, seeds, vegetable fibre, and gluten constitute the solid parts. The fibrin is, indeed, not completely digestible, but when the fruit is fully ripe it passes into a soluble condition. The specific weight of the Apple is about eight per cent.—that is, considerably less than water—and there are about fifteen per cent. of solids. The specific gravity of the solids when dry is 1.47.

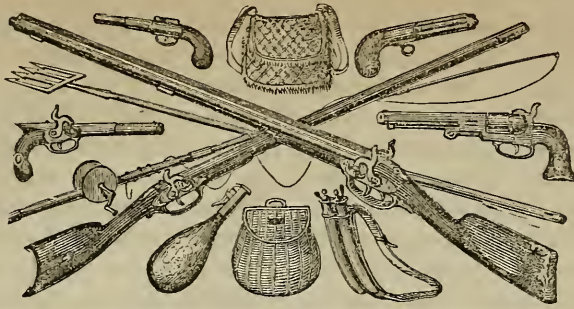
The part of the Apple nearest the skin has a finer and more aromatic taste and smell than the part immediately surrounding the core, which has often a more watery taste, and has also a less specific gravity than the outer portion. The more solid Apples, as the Russet and Borsdorf varieties, are the most palatable and nutritious. While ripening the fruit gives off carbon in the shape of carbonic acid, and while it remains upon the tree it increases in solidity, since there is a constant flow of sap to it, and the fibrin increases, but the conditions are different where fruit ripens after it is plucked. In this case the proportion of fibrin and water is less, while that of sugar is greater, so that such fruit is sweeter, but loses in freshness and fragrance.

The Apple has not only the greatest

number of varieties of all fruits—over 1,200—but it is also the most widely diffused over the earth. It accompanies man everywhere except to the extreme polar regions, and the highest tropical countries, nevertheless its true worth is seldom appreciated. In the country, Apples and other fruits often constitute the almost exclusive food of children, but the inhabitants of cities often complain that they can not relish them; that they cause flatulence, and that after eating much of them they observe a loss of physical strength. But all these symptoms only indicate a weakened or diseased stomach. In most cases it is warm food and stimulating drinks that have thus impaired the natural capacity for the digestion of fruits. In those families where much fruit is eaten, especially Apples, the children, and indeed all who thus live, are distinguished by their healthy appearance, red cheeks, and cheerful tempers; while those who eat little fruit, and whose food is that of our fashionable tables, are often quite the reverse in appearance and disposition. Although the nutritious qualities of Apples differ somewhat with different varieties, they are all alike in their refreshing and enlivening qualities.

(To be Continued.)

ALMOND CULTURE.—Some of the farmers of Sonoma Valley are experimenting with Almonds, with every prospect of ultimate success. One man has 2,500 Almond trees, which are now three years old, and have blossomed this season. The vicinity where these trees are planted is favorable to the growth of the Almond, being free from frost, and on the hillside. It is to be hoped that experiments with this very profitable tree will be made in other sections.



Bad and Gun.

OUR BROOK TROUT. — MOUNTAIN TROUT. — *SALMO IRIDEA*. — GIBBONS.

The following interesting description of our common Pacific brook trout is extracted from Chas. Halleck's "Sportsman's Gazetteer and General Guide," a large and splendid work just published in New York, and can be had or ordered at Roman's in this city.

Special characteristics.—Head is one-fourth the total length; diameter of eye enters length of head five times, dorsal fin half-way between end of muzzle and insertion of caudal fin; muzzle pointed, Branchiæ, x, xi. Color, olive-brown on back with silvery reflections, fins red or orange. A reddish line from the gills to the tail along the middle of the body. Head and gills covers spotted profusely with black; back and sides also spotted irregularly, numerous near the tail. Dorsal adipose and caudal fins also spotted.

Suckley states it may be distinguished from *Salmo Lewisii* by its large head and more slender form, larger scales, more numerous spots and more forked tail. From *S. virginalis* by its strongly forked tail and spotted head. Habitat, California and Pacific States. It has been taken in nearly all the waters of the Pacific, notably in San Mateo Creek, Cal., San Francisco Bay, Chico Creek, Cal., Humboldt Bay, The Dalles,

Oregon, Fort Steilacoom, Nisqually Creek, Cape Flattery, Puget Sound, Kern River, Cal., etc.

This species may be taken with almost any kind of bait. It will rise readily and greedily to the fly or the grasshopper; raw meat is good, the eye of a fish excellent; grubs, larvæ, and worms, all seem to be eagerly desired. Suckley has taken them by trolling with a "belly fin of a fresh killed fish." There is a peculiarity of this fish and its western congeners regarding location, which is worthy of mention. Unlike the eastern trout it seems rather to prefer moderate currents of water, or indeed pools which are absolutely still, and this fact should be remembered by those who fish. This specimen attains a weight of from four to six pounds, and even somewhat larger, and is in good condition for the table from spring until near Christmas, at which time they begin to spawn.

Mr. Henshaw, the ornithologist of the Expedition for Explorations West of the one hundredth meridian, who has had considerable experience, states that "in the rapids of the mountain streams artificial flies can be used with excellent effect, the smaller individuals striking freely. In the pools of such streams, however, they are of less service, grasshoppers or the white larvæ found in rotten pine stumps being the most killing bait. Dr. H. C. Yarrow

states that he has taken seventeen fine trout out of one pool not more than three feet in diameter, in quick succession with grasshoppers. In the large mountain streams of Kern River, Cal., where the trout reach a weight of seven pounds, a spoon bait often proves very taking. [Dr. Jessop's new spoon with fly attached would probably answer here.—ED.] Early in the season any or all baits suffice, but later, when the trout get thinned out, and difficult to tempt with anything, mice and squirrels cut in strips have succeeded where other lures had previously failed. In Lake Tahoe, where *S. iridea* abound as well as other species, believed to be new, the former are said to reach a weight of thirty pounds. The methods of capture are various, trolling being generally employed, the hook being similar to the one used in the East for blue fish; but on the hook a minnow is placed as bait, and the boat is slowly rowed along the line of shallow and deep water which varies in depth from thirty to seventy-five feet. The fishermen maintain the existence of two distinct species of trout, which they call "silver trout," and the "black or salmon trout," and the difference of color is distinctly perceptible. There is also a marked difference in the size of the dorsal fin.

THE SALMON.

The salmon is both a fresh and salt-water fish, and divides its time pretty equally between the two, but is more generally confined to the more northern districts of countries or climates, where the temperature is rather low. When they have once entered a river their progress is not easily stopped, ascending those of the greatest length, and remarkable for their velocity and strong vortexes. They always have their heads

to the stream; and their muscular power must be enormous, as they shoot up rapids with the velocity of an arrow. They are sensitive and delicate in the extreme, and avoid water that is turbid or tainted in any way, unless they have to pass through such portions of water to reach where it is clear, as the upper waters in our Sacramento and San Joaquin rivers. They also rather dislike streams that are dark with forests, or any other shade. When their progress is interrupted by a cascade or fall of water, they make wonderful efforts to surmount it by leaping; and as they continue to do that at places where a salmon has never been known to ascend, their instinct can not be to go to the particular spot where they were spawned, but simply to some small and shallow stream. In this way great numbers perish when they can not find such ground.

There is scarcely any time unless when it thunders, or the water is thick with mud, and when the fish are just commencing to enter our rivers at their mouths, but you may chance to tempt the salmon to rise to an artificial fly. But the most propitious are critical moments; or, undoubtedly, when clearing after a flood, the water has turned to light whey, or rather brownish color; when the wind blows pretty fresh, approaching to what is called a mackerel gale, against the stream or course of the river; when the sun shines through showers, or when the cloudy rack runs fast and thick, and at intervals discovers the pure blue ether from above. In these situations of the weather, you may sometimes hook many good fish.

The most difficult thing for a beginner is to throw the line far, neatly, and to make the fly first touch the water. Many attentive trials will, however, bring him to do it at last with dexterity.

It should always be across the river, and on the far side, when you expect the fish to rise. If he appears do not be too eager to strike, but give him time to catch the fly; then with a gentle twist, fix the hook in his mouth or lip, as the case may happen; if he is hooked in a bone, or feels sore, he will shoot, spring, or plunge, with so much strength and vehemence, as to make the reel run with a loud whizzing noise, and your arms to shake and quiver most violently. In this situation let him take out the line from the winch quickly, though witness this with composure, keeping it always at the same time stretched or tight, but yet ever ready to throw down the point of your rod to yield to his leaping high out of the water. Do not, if possible, let it run to any very great length, as it is then apt to be unmanageable, but rather follow him, and if he comes toward you or back, you must run back, and wind up as fast as you can, so as to have as much as in your power the line taut, and hold your rod nearly in a perpendicular position. When he becomes calmer, he often turns sullen, especially if he is a very large fish, and remains motionless at the bottom of the water. Then cast a few stones upon the spot where you think he is, and this, in all probability, will rouse him from his inactive situation. Be cautious in the lifting and throwing of the pebbles, as the salmon may spring at that instant, and break your tackle, should you be off your guard. Being again in motion, he generally takes his way up the current; do not then check him, as by this way his strength will be the sooner exhausted. When, now fatigued, and no longer able to keep his direction, he once more tries all his wiles in disengaging himself from the guileful and hated hook; he crosses and recrosses,

sweeps and flounces through every part of the pool or stream; but, finding all his efforts to be in vain, he at last, indignant at his fate, with immense velocity rushes headlong down the stream. If the ground is rough and uneven, or if you can not keep pace with him, give him line enough, and when it slackens wind up again, until you nearly approach him. You will then probably observe him floating on his side, his motion feeble, and all his vigor gone. Being unable to make any farther resistance, it behooves you now to lead him gently to the nearest shelving-shore; then use the gaff without mangling the fish, or take him softly by the gills in your arms, or throw him, if not too heavy, upon the top of some adjacent bank, or sufficiently far up it to secure it in safety. If there be no shoal bank put a landing net under him and so lift out of the water. The best baits are rather large, gaudy artificial flies, lob-worms, salmon roe, live or dead fish baits, and mussels from the shell; the hook must be strong and large; bottom fishing, however, is usually more successful for salmon than fly-fishing, but trolling from a boat with a large spinning and flashing gold and silver spoon-bait, with a triangle of hooks at the end, and a red feather or piece of flannel between the hooks and the spoon, is generally more killing than all.

FISHING AT MADEIRA.

Mr. M. took us in the evening to a large rock at the entrance of the harbor, called Bird Island, where, being provided with rods and bait, we commenced fishing shortly after the sun had gone down. The native boats had just given up as we arrived, which was a pretty good sign that the best part of

the day was over; however, we went to work, and as M.'s black boat's-crew instructed us in the piscatorial art as practiced at St. Vincent, I will try and describe their operations.

The rods, stout bamboos about fourteen feet long, with the lines fastened half way down and leading to the top, having been taken out of the boat, an active darkey commenced spearing small crabs, quantities of which were running over the side of the rock, as the waves rising and falling exposed them momentarily to the quick eye of the sharp-sighted negro, whose unerring dart seldom failed to secure its aim. Having killed a couple of dozen, he commenced mashing them up with a stone into paste, which, formed into balls, he immediately cast into the sea to attract the fish; and then baiting our hooks with legs of crabs or barnacles, we watched the result of his mode of attack with some anxiety.

We had not long to remain in suspense. "I've got one," was soon the cry, and shortly all the rods were bending at different angles according to the weight and resistance of their various captures. Nothing could be more exciting than this sport, which for over an hour was steady and unceasing. Nearly all the fish were of different varieties, and had we been unattended by M.'s "darkies," I am confident some of us would have been hurt, if not seriously injured, by the fish in unhooking them, as nearly all were armed with some description of prickle or large sharp spines. Many of their prickles were poisonous, and all of them bit like mad at everything within reach on coming out of the "briny."

A handsome red fish, about two pounds in weight, and something like a perch, called by M. "the king of the seas," was the best eating of the lot,

and well merited his proud appellation, as a finer flavored one I have seldom tasted. A black ugly thing, about a pound weight, was called "the soap-fish," and was uneatable; but on being stirred about in a small pool of salt water, soon caused it to lather like suds. A porcupine fish (*Diodon hystrix*), weighing about seven pounds, one of the Plectognathes, was perhaps the most curious one caught. The men treated this gentleman with the greatest possible caution, evidently regarding him as a dangerous brute. A more awkward one to handle it is quite impossible to conceive, as he was entirely covered with small spikes, dispersed over sides, back, and abdomen in such a manner as to prevent effectually any one touching him. On being hauled up he came grunting loudly out of the water, and as he lay on the rocks, commenced swelling himself out by successive gulps of air, which he inhaled with such noise and vigor that he soon resembled a cross between a distended football and an angry toad. Its skin was so tough that it resisted easily the pike-thrusts which saluted it, and only after several efforts was it dispatched with a sharp strong clasp-knife. Its maxillary and intermaxillary bones are soldered together so as to render the upper jaw immovable; its entire mouth appeared plated with some kind of enamel, and M. told us that its powers of crushing was so great, that when fresh from the water one of them could easily crumble any of the lumps of scoria lying about, were a piece placed between its powerful jaws.

We caught several large eels, which caused more alarm than anything else—the niggers skipping away like monkeys the instant they were thrown upon the rocks. They certainly were formidable brutes, and the bare-legged boatmen

were amply justified for the activity they displayed. Their jaws, shaped something like a duck's bill, were capable of great expansion, and their teeth were strong and sharp as razors. One that we had speared turned viciously round and bit a large piece out of his own tail, and then seizing a bamboo he had been struck with, severed the tough cane as if it had been a simple carrot. We afterwards spiced and pickled our ill-tempered friend, and found him excellent eating; but though the flesh was perfectly white and delicate, his bones were all deep purple, and strong as steel. The vertebral bone was marvellously formed for strength, having a kind of extra flange through its entire length, which must have given the brute an amount of power I have never seen developed in any other kind of eel, or in any skeleton of snake or viper. All the small bones terminated in a kind of fang or fork which I never observed in any other fish.

We killed many other varieties of fish which it would be tedious to describe, and got back to the ship when it became quite dark, after having enjoyed an evening's sport—as unusual as it was interesting.

THE DUGONG OF AUSTRALIA.

The manager of the fishery comes on board later in the evening to tell us that a young dugong has just been captured, and straightway an enthusiastic few scramble over the Kate's side, and repair a second time on shore to see the singular creature, out of whose kindred, some of these days, goodly fortunes will be made. There it lies upon the beach, a young female calf, weighing about two cwt., and the color, so far as I can observe it in the glare of half a dozen fire-sticks, dark-brown. The

dugong is becoming better known every year, but hitherto the attempts to turn it into a remunerative commercial channel have not been as successful as they must be when adequate capital is put into a thoroughly equipped fishery. I seize the opportunity to examine the process (conducted, however, on a limited scale), by which the dugong captured in this part of Moreton Bay are turned to account.

First comes the conversion of the fat into oil. I am grateful to say that cod-liver oil has never been a prescribed portion of my regimen, but there can be no doubt in the world that fine dugong oil possesses all the therapeutic qualities of that flesh-restorer without the unpleasant smell and taste dreaded by so many invalids. The flesh I can vouch for as being excellent. I have tasted the bacon, and it is white, succulent, and clean-flavored—as good, in fact, as one would wish to have it. Another description of the meat, eaten cold, might pass for a cross between pressed beef and ox tongue. On board the Kate, the day after our visit to the recently-captured calf, we partook of a dish of dugong cutlets which would have satisfied an epicure, and were actually declared by some to be very tender and nicely cooked *filet de bœuf*. The hides appear to be invaluable; the leather is of excellent quality, and more than an inch thick. What will machinists say to that? Dugong are now principally taken in a net with very wide meshes. The nets are laid in subterranean thoroughfares through which the experienced fisherman knows the creatures will pass on their search for marine grasses; the animal becomes entangled, struggles himself into inextricable toil, and, being unable to rise to the surface to breathe, drowns. The dugong is well named the sea-cow, for

its head is not unlike that of a polled bullock, though its nose is considerably broader, and furnished with a square terminal by which it may discover and crop the herbage of the marine pastures to which it flocks. The body roughly resembles that of a gigantic seal, and dugong are sometimes taken weighing a ton and a quarter.

SCHNAPPER FISHING IN AUSTRALIA.

The dangerous nature of the ocean bed at Flat Rock renders it impossible to anchor near the fishing ground; the Kate (our craft) as fast as she is brought near the desired spots, drifts back again, and, as the fish are only to be had near the rocks, the moral enforced upon us is that we must make the most of our time. And this is how we do it: Each man takes up a position and clings to it. At his feet, and, if he be a deft fisherman, disposed so that there shall be never a hitch, lies coiled his line, thirty fathoms long, about the thickness of a lead pencil, and weighted with three egg-shaped pieces of lead, each a pound in weight, and so bored that the line will run freely through it. The hook is a trifle, but not much smaller than a young meat-hook, and it is best to have it attached with a length of overgrown gimp, or three pieces of ordinary gimp twisted. The bait is a lump of fish or meat the size of a walnut. Slowly the steamer advances to the charge until you can hear the green water streaming off the rocks. Look well to the thick leather gloves on your hands, else presently your fingers will pay the penalty. It is comical to see twenty gentlemen, cabinet ministers, waiting at the bulwarks, line in hand, in all kinds of expectant attitudes, eager to have the tackle overboard the moment the way of the stopped steamer slackens.

With splash and shout at length twenty heavily-weighted lines are fast speeding through the beautifully clear depths—twenty lines racing through finger and thumb at a rate that renders either a glove or a canvas sheath an absolute necessity. Do your best in ten minutes, for no longer can we remain in such a dangerous neighborhood. What is that? Forward there is a loud and long-sustained rub-a-dub on the deck. Is it a heavy-footed man dancing a breakdown? Nay, it is the first schnapper announcing his release from the nasty, wet, salt sea, and heralding his kith and kin, so that within a couple of minutes the entire deck echoes with the rub-a-dub of fresh arrivals.

It is scarcely sport; it is next door to slaughter. Alas! and is one come to this? On this day twelvemonth I scored the best trouting afternoon in my life, all fish artistically caught with delicate implements in a clear-running stream; and here I am hauling up from the bottom, 180 feet down, a burden which taxes all my strength, and makes the perspiration ooze from every pore. Yet it is grand fun for a while. The fish bite fast and furious. Bang, bang, bang! There is no mistake above about the bite, and no mistake below about the strike. Haul, haul, haul! the line throwing out coruscations of silver in its rapid ascent. Soon your eye discerns, fathoms deep, an almost impalpable flashing to and fro, as if a large dish were gyrating in an eddy; it assumes a lovely pink hue as you bring it nearer the surface, and then, in a twinkling, a burly schnapper of seven or eight pounds is dancing vigorously and noisily on deck. Sometimes it is a fish at every haul; and, under those circumstances, not the least amusing feature of the sport is the spectacle of a score of excited men jumping around a

score of big fish which are doing their best to convey their amazement and indignation to an unfeeling world.

The schnapper is, like nearly all the fishes of these waters, beautifully tinted, and the prevailing color is rose pink, speckled with turquoise blue. It is a thick, broad-sided fellow, as if originally intended for one of the bream tribe. The resemblance to the bream, however, ceases at the top of the shoulders, where there is a bony hump, and a sharply sloping, undulating ridge of bone down to the mouth, which is horny and well furnished with teeth. You deposit your game, not in the familiar creel, but in a sack bag, knowing full well that at the wharf at Brisbane by-and-by there will be an astonishing number of acquaintances, who happen to be passing—just by accident, of course—and who will somehow walk away with a brace of fish dangling from a bit of spun yarn. The schnapper is, in fact, excellent eating. It does not come amiss in any shape—boiled and served with caper sauce, fried with egg and bread crumbs, soured, and, better still, as mayonnaise.

The best of schnapper-fishing is that you leave off contented. It is hard work; the fish range between five and twelve pounds; it will be a very bad visit indeed to the Flat Rock if you do not get your ten or a dozen schnappers. One of our party has five-and-twenty—much more than he can carry. My own modest “swag” of eighty pounds or thereabouts I find quite sufficient before I cast the burden off my shoulders. Our fishing lasts not more than two hours, and a large portion of that time is occupied in steaming, after the drifts, up to the rock again. Yet we return with 250 schnappers on board, besides other fish, making a total weight of not much less than 2,000 pounds. And

everybody condoles with me that my first schnapper excursion has not been particularly successful. It is no uncommon thing for 600 large schnappers to be taken on one of these excursions.

Luck at this, as at all other fishing at which I have “assisted,” varies of course, and is distributed in a most unaccountable way. Here, for example, at my right is a gentleman suffering severely from sea-sickness (for we play heavily at pitch and toss during our other sport), but who at times catches four to my one. He has nothing to do but bait his hooks, cast them over, and pull up a schnapper with a “Yo, heave ho!” To my left is another gentleman who fishes carefully and well, but who never hooks a fish. Yet we are close together, and adopting precisely the same mode of procedure.

It is not, however, schnapper alone that we take. At one of our halts we catch a very strange collection of fish indeed. First, there are three varieties of the parrot-fish, shaped somewhat like the carp, colored a brilliant scarlet, and armed with four ivory teeth, protruding like a rabbit's. A small fish, the exact image of a thick-set trout in bodily form, and about a half pound in weight, falls to my share. How it could have taken the schnapper hook is a mystery to this day; but there it is in the Brisbane Museum, admirably set up and preserved, and taking its place among the natural history curiosities, with its scientific name, and my own name as the distinguished donor, duly set forth in intelligible characters. The fish is designated “*DiaCOPE octolineata*, family *Peresidei*.” The colors fade somewhat after death, but I make a memorandum with fishy fingers, before it gives up the ghost, and thus it runs: “In shape not unlike a Wandle trout; fins and tail bright gamboge; belly ditto

with vermilion spots; sides bright yellow, with four lateral stripes of bright blue—rows of turquoise on cloth of gold." A king-fish is also taken, a blue and white gentleman, apparently of the bonito persuasion. A perch, own brother in shape to our English friend of that ilk, only a magnificent vermilion with black spots, is another celebrity. Two or three metallic-colored fellows have no name, so far as I can find out.

During the last half hour we have a succession of surprises. A member of Parliament calls lustily for help, and we rush to his aid. He has hooked a shark, and after a tremendous tussle the beast is landed by means of a couple of boat-hooks thrust into its carcass. It is about five feet long, and as it betrays an uneasy conscience, and is far too lively to be safe, it is conciliated with a well-sharpened axe. Another gentleman of the Legislative Assembly, not to be outdone, sets up a wild hullabaloo; he, too, so he avers, has also a shark. It is not for me, of course, to contradict an old colonist, and a gentleman moreover who writes M. L. A. after his name, but I know that it is not a shark. You can see it is a big fish, nevertheless; there are strong men (all senators) engaged in bringing it in, but instead of darting swiftly hither and thither, it comes up a dead weight, no more like the shark than the chub is like the pike. Its sheer weight unfortunately severs the line, and there are three blank lamenting faces near the sponson, and general laughter from the rest of the company.

The lion of the collection, however, is taken by not only a M. L. A., but an honorable cabinet minister, now in England; to his lot falls a groper of sixty pounds weight.* It is a kind of

rock cod, with dark brown leather skin, and tremendous head and mouth, and its behavior while on its journey from the tranquil caves of deep ocean to the upper air convinces me that it was a groper also which the honorable member lost near the sponson. The sixty-pounder does not show an ounce of pluck from first to last, but allows itself to be hauled in as if it were its fate, against which it were useless to contend; and the only protest it makes on deck is to open its jaws, but in a manner more indicative of an ill-mannered gape than a decided exhibition of defiance. I do not hesitate to repeat that this groper is distinguished by its large mouth; a medium-sized portmanteau might be stowed away in it without the slightest inconvenience to the fish.

After the engagement is over, the combatants clear the decks, remove the slain, put away their weapons, and resume the attitudes and pursuits of peace. So, as the engines are thundering at full speed, like steeds who smell the stable afar off, we gather together our spoil, string them on all manner of belaying-pins, rails, and stanchions; while buckets of water soon make the decks look a little less like shambles, and more like a very modest member of her Majesty's fleet. We are very tired and very satisfied. Our shoulders ache and our fingers smart; but there are piles and strings of fish decorating the ship fore and aft, and we light our pipes and sprawl luxuriously about, watching the sunset, and pondering dreamily about nothing in particular. The great, awkward pelicans rise from the beacon-posts and sail through the air shorewards; they are fishermen, too, and they, like ourselves, have done their day's work and are thinking about their nests.

* Two years since a groper of 300 pounds weight was taken in the Brisbane River.

Selected Articles.

SONG OF THE MORNING.

The lark is floating on waves of song,
 Unseen in the summer sky ;
 On the wings of the wind are swept along
 The strains that he pours on high ;
 Like a seraph he sings, as his way he wings,
 Of a love that can never die.

For dreary night has drooped at last
 In the arms of virgin day ;
 The gloom that filled his face has passed
 And faded far away,
 As the pure dew fades on the pure flower blades
 In the radiant morning ray!

The bee is filling the beauteous bowers
 With the hum of his joyful lay ;
 As he steals the sweets of the fragrant flowers,
 His deep voice seems to say,
 "Arise, O rose! for the dark night goes
 To the kingdom of decay."

The blackbird thrills the heart of morn
 With the floods of his cloudless glee,
 As he swings in the breeze on the tremulous
 thorn
 In a musical ecstasy;
 While the fair ringdove is dreaming of love
 In the depths of the dark fir tree.

The roses rise with dreamy sighs
 From sadness of the night ;
 The sweet birds sing and the woodlands ring
 With echoes of delight ;
 The bright rills gleam and the rivers stream
 Like rainbows on their way ;
 All things rejoice with varied voice,
 For night has passed away.

SOME OF THE CACTUS FAMILY.

For singularity and grotesqueness of form, as well as for the exceptional conditions under which they thrive to the best advantage, no class of plants is more remarkable than the *Cactaceæ*. Of these, upwards of sixty species have been already described by discriminating botanists, all of which are indigenous to this continent. Although they vary in stature, from thorny stems that creep, snake-like, along the ground, to globular, jointed masses, and gaunt,

bare columnar trunks that sometimes rise to the height of fifty or even sixty feet, yet they are all distinguished by several common characteristics. Without an exception they are fleshy and succulent, armed with menacing spines and bristles, and leafless with the exception of a single species. They all delight in a dry, sandy, barren soil, scorched by the full rays of a tropical sun, where—an anomaly in nature—amid the general drought, glare, and torrid desolation, their stems are filled with an abundance of pleasant, sub-acid juice, which, inclosed in a tough, impermeable skin, enables them to support a sluggish vital action, and justly gains for them the title of "Springs of the Desert," from the thirsty lips of many a wearied traveler over the parched wastes where they form nearly the only vegetation. Nor is an occasional human wayfarer the only creature that derives refreshment from their liquid treasures. When, in the dry season, all other forms of vegetable life have withered from the Llanos of Mexico, the prairies of Texas, and the plains of New Mexico, the wild ass, the mule, the mustang, and often the long-horned cattle, know well how to sustain a migratory existence, amid the arid wilds, by having recourse to the providential Cactus. Cautiously, with their hoofs, they rub off the noxious spines, split open the plant, and then suck with delight its cool and refreshing juice. Almost all the species bear, likewise, edible fruit, some of which are among the most delicious of the hot zone where they mature. Generally, these somewhat resemble, in flavor, the better sort of Gooseberries, to which they are botanically related.

Few families of plants are confined within such narrow limits as the *Cactaceæ*. All the American species, with a

single exception, are natives of the warm region bounded by the fortieth parallel of latitude on each side of the equator. The parched plains of Mexico, New Mexico, and Western Texas, are the desolate wastes where they are found in the greatest size and abundance. Here the Torch-thistle Cactus rises to the height of from twenty to thirty feet, dull grayish-yellow, branchless and leafless. Here, also, the *Cereus giganteus*—the giant of the Cactus family—is met with, chiefly between north latitudes 30° and 35°.

Plants of this species rise in the form of beautiful, fluted columns, as regularly grooved from top to bottom as if chiseled by an artist's cunning hand. The stately trunks are about three feet in diameter, and retain their size and symmetrical form to the height of fifty and sometimes sixty feet. The edges of the grooves running perpendicularly from summit to base, are thickly studded with long thorns, hard as steel, and as sharp as a cambric needle. Sometimes the giants throw out branches, which, at a short distance from the trunk, turn upwards, and grow parallel to it; but generally, not a limb or leaf mars their artistic contour, and were it not for their dark-green color and the crowns of splendid flowers that grace, like capitals, their lofty summits, they might easily be taken for productions of art—solitary shafts commemorating dead and crumbled cities—rather than for natural specimens of vegetable growth. These coronal flowers are produced in great abundance, and are four or five inches long, and nearly as broad. The sepals are greenish-white and the petals light cream-color. The tree also bears a green-colored fruit, slightly reddish at the upper end, with a crimson pulp and a sweet but rather insipid flavor.

A very useful member of the family is the *Cactus cochinillifer*, which is to the cochineal insect (*Coccus cacti*) what the Mulberry is to the silkworm. From the days of the Aztecs this insect has been reared with great care in Mexico, on account of the brilliant carmine and scarlet dyes it yields. The insect belongs to the hemipterous order, and is, in reality, a small bark-louse, with a body transversely wrinkled. They have the form of oval or rounded scales, which cover the stems, branches, and often the leaves of the plants. The males are winged, pass through the usual metamorphoses, number less than one to a hundred of the females, and yield no pigment. The females increase in size only, always retaining their scale-like form, are picked off with a blunt knife from December to May, each year, and are killed by dipping them into boiling water, or by placing them in a hot oven or on plates of hot iron, each mode of execution imparting a different tint to the color derived from them. When dried it takes 70,000 insects to form a pound of cochineal, which presents the form of grains, convex on one side, and concave on the other, about one-eighth of an inch in diameter, with the transverse wrinkles of the insects still visible. So superior is the dye obtained from these insects that they have entirely superseded some other species of the same genus, formerly used for a similar purpose. They, and the Cactus on which they feed, have been successfully introduced into several countries, notably into the Canary Islands, Algeria, California, Brazil, and Java, and the supply furnished by these colonies now far exceeds that from the original market.

The flowers of the different species vary from pure white to a rich scarlet and purple, and are much increased in

size and brilliancy by cultivation in gardens and greenhouses. They thrive best in the poorest soil, and a sandy loam mixed with brick rubbish has been found excellently adapted for them. In cultivating them, due regard should be paid to their natural habits. At alternate intervals of a few months, they should be stimulated to growth by the liberal application of water, and then again, allowed to rest by withholding all irrigation. The flowers usually appear after this period of quiescence, just as the new growth commences. Some of the indigenous, tropical species, however, do not bloom until they are several years old, and when brought under cultivation, their flowering seems to be almost indefinitely postponed. Occasionally it has been found that some thankless plants that have for years vegetated flowerless in pots, have suddenly burst into bloom shortly after having been heroically flooded with an abundance of hot water.—*Rural New Yorker*.

INDUSTRIAL CONDITION OF THE SLOPE.

A late shipment of Peaches and Apricots in refrigerator cars to the Atlantic States has turned out disastrously, and the crop is so short that little more will be done in that line this year. The production of dried fruit will also be scanty. Several of the Alden drying-houses, for lack of fruit to work on, will buy vegetables. An experiment is to be made in drying sugar-beets, with the idea that there may be a profit in shipping the dried material to Europe. The *Scientific American* says:

"Europe is taking surprising quantities of American fruit. The purchases have amounted, according to the *New York Tribune* of recent date, to

over \$2,500,000 worth since June, 1876, compared with \$600,000 worth in the year before. Dried Apples figure largely in this movement. This country has exported over 12,000,000 pounds of them since last June, as compared with 522,000 pounds the previous year. There is no industry or trade, foreign or domestic, that can show such a large gain as was made in the shipment of Alden Apples to Europe last year over the year before—nearly 2400 per cent. The principal product of the Eastern factories is Apples—they have no Apricots, Quinces, Plums, etc., but do considerable business in drying vegetables. Freight on Alden goods from this port to Europe is less than from Ohio or Michigan, where most Alden factories are located. This new addition to the trade of the United States is due to invention, which has occupied itself of late with improved methods of drying and preserving fruits. The greatest progress has been made in the way of drying. Within the past five years some notable inventions (at the head of which stands the Alden) in this line have been perfected, which are a great acquisition to the resources of the country. The fruit dryer bids fair hereafter to be as much of a necessity to every farming community as the cider mill and the cheese factory."

This is certainly a very encouraging exhibit, and will tend to stimulate this growing industry in California, when all the conditions are favorable for the production of every variety of fruits and vegetables in great perfection, and at small cost. We predict that, before the lapse of many years, the growing of fruits and vegetables, and their preservation by drying, for exportation, will be a leading and most profitable pursuit in California. The drying of vegetables is rapidly growing into an

important business. The Alden factory at Anaheim is being enlarged, and will turn out several hundred tons of dried Onions, Potatoes, Corn, Peas, etc., this season. These evaporated articles can be shipped to Europe, in our wheat ships, as top freight, at about \$10 per ton, and there is no danger of overstocking that market. According to some figures cited by Mr. Joly, before the Central Horticultural Society of France, and taken from the records of the Custom House, the total quantity of dried fruits exported to England, Belgium, and Germany, amounted, in 1874, to nearly 80,000 tons; of dried vegetables (mostly Potatoes), the enormous quantity of nearly 200,000 tons. In the light of these figures, which are not exaggerated, there is no room to doubt the vast proportions which this new industry is destined to reach in a very few years.

The drying of fish has received little attention so far on this coast, and it deserves more. The extensive fisheries of Alaska, British Columbia, and Washington Territory might be made the sources of great profit, if the superabundant moisture of the catch could be promptly removed so that with a moderate amount of salt or smoking, decomposition could be prevented. But the climate on the immediate coast north of 42° is too moist for drying fish, and the distance from the fisheries to San Francisco is too great to permit of transportation to our city. A method of drying that can be applied in Alaska is wanted, and the abundance of fuel and the cheapness of building material and of land on the banks of secure harbors, offer encouragement to enterprise. The desiccation of codfish by artificial heat would be a novelty, and if it should prove a pecuniary success might be of immense advantage

to our coast and especially to Alaska, which is unequalled in the combination of excellent fishing banks with extensive and neglected forests.

It is probable, too, that the drying of fish by artificial heat would be applicable with profit in California. The sardines, smelts, and anchovy in Monterey Bay, the jewfish, sunfish, sheepshead, and mackerel farther south, are worthy of consideration as material for drying. It is to be observed, however, that some fishes, including salmon, and some mollusks, including the oyster, contain an oil that can not be removed by desiccation, and soon turns rancid.

DR. WINTER, who has just returned from an extended trip South, stated that the scale insect, and other pests which have received the attention of microscopists and entomologists, he has been able to remove from a hundred Orange trees, which he selected for the purpose of the experiment from his grove at Orange, about seven miles from Anaheim, by a systematic and free use of whale-oil soap and water applied with a brush. The trees are a third larger than the others, and generally more thrifty from this system of grooming.

PEARS were brought from the East by the Romans, who cultivated them with care. The Pear is a hardy tree, and longer lived than even the Apple. The best varieties of the Pear rank deservedly among the most delicious of fruits. In composition the Pear does not differ very greatly from the Apple. The Peach is a native of Persia, and was called by the Romans *Persica*. Both in the fresh and preserved state it is a very favorite dessert. It contains sugar, gum, pectine, malic acid, and water.

Editorial Portfolio.

OUR FRONTISPIECE.

Our frontispiece this month consists of two pictures—one a Tropical Scene and the other Juvenile Angling. Although our information as to many countries in the tropical zone is defective, still its broadest features, as a whole, are sufficiently well defined to enable us to trace a certain development of perfection in its vegetation, to which the luxuriance which characterizes it so largely contributes; melting as it does into the next—the equatorial zone—and possessing many characters in common with it, it nevertheless has its own peculiarities. The most distinctive marks of the tropical zone are the prevalence of the Tree-ferns, and the dense underwood which chokes the forests; while in common with the equatorial zone, they are entangled with a variety of climbing plants, called by the general name of Lianas, among which are different genera of the beautiful *Convolvulus* tribe; the blossoms of some of these, called *Ipomæa*, are almost the same in general appearance and tints of color as the *Convolvulus* major of our gardens, though some of them, it is said, are rather larger. A family of plants, called *Melastomaceæ*, may be mentioned with them, which show a pretty contrast of color between the clusters of little purple corollas and the yellow anthers, which in this flower are very large, and protrude beyond the petals. Climbing over the Tree-ferns grow the twining Pepper-plants (*Piperaceæ*), and in most parts of this zone the *Orchis* tribe is to be met with in all its splendid and curious variety. In these tropical scenes the Palms are first in dignity. Their prevailing form is a straight and un-

branched stem, with an immense tuft of gigantic leaves on the top, in some spreading horizontally, in others shooting up perpendicularly, or in others again drooping. The leaves of the Palms are very varied in shape, sometimes long and simple, sometimes feathery or fan-shaped; in color they are of a shining dark green. As for the flowers, they are small, and often of a greenish white color. The fruit, as we know from two specimens with which we are familiar, the Date and the Cocosnut, is very varied in size and appearance.

The list of the species of Palms now contains no less than 444. They grow interspersed with Oaks (*Quercus Grana-tensis*), Nut-trees, and a species of *Podocarpus*, trees somewhat resembling the Yew. One of these is the beautiful Wax-plant (*Ceroxylon Andicola*), with numerous other vegetation. But in alluding to our picturesque illustration, with its calm-surfaced river, conical mountains, primitive native huts, and boat with fishermen, we must leave the rest of this scene in the tropics to the imagination of our readers.

Our other picture with its water-mill, pollard Willows, rustic bridge and group of figures on it, including a boy fishing, reminding us “born-anglers” when we, as boys, used a branch of a tree for a rod, a bent pin for a hook, and a cotton thread for a line, we must conclude that our readers will regard all as a very natural as well as a pleasing scene, and needing no further description.

THE JAPANESE PERSIMMON (*DIOSPYRUS KAKI*).

In our notice of this valuable new fruit, and of the Rev. Mr. Loomis, we inadvertently stated that that gentleman is the agent for its sale in this city, whereas he is the proprietor himself in

this business, and will again, next season, keep his office at Mr. Trumbull's agricultural and horticultural store, Sansome Street, with a larger assortment of the trees than he had last season.

We also committed an error in stating that the paper cutters he had were made of the wood of the Persimmon stained with the juice of that fruit, whereas the color of those implements was the natural one of the wood, which was black, and close in grain, being a species of ebony (*Ebonaceæ*). Further, it was stated that a Japanese horticulturist was expected to come to this country, but the fact is, that Mr. Loomis has arranged with one of the most competent men in that country to supply him with the best trees and choicest varieties that are known. Rev. Mr. Thompson of our Legation writes to Mr. Loomis that he has been in Japan thirteen years, and he has never known a failure in the Persimmon crop; it is always reliable, and is never known to be affected by any curculio, or other insects that destroy the fruit so much in the East, but certainly very rarely in California.

PAVILION GARDEN—MECHANICS' FAIR.

The garden, or horticultural department of the Mechanics' Exhibition, this year, is as creditable to the managers as it has ever been heretofore. The confined space and other circumstances considered, we think, the true theory of gardening in this instance, as in former ones, has been judiciously carried out. The Roman plan for a small garden was to surround it on all sides with a colonnade, and adorned with a fountain, statues, and a profusion of flowers; for whatever may be said of the mere utilitarianism or formality of

ancient gardening, it is certain that the ancients were lovers of flowers, and that to a skillful cultivation of them, they added the rare judgment of tastefully adorning their grounds. The Italian style, of which the pavilion garden is somewhat like in character, is, on account of its prescribed limits, nothing but a little extension of the plan of the Romans. It is bound, too, to partake a good deal of the primness and geometric fancy of the gardens in Holland. With these kinds of style gardens are considered as an extension of the house—an amplification of it, and hence to be heated artificially, and in a mode of taste consonant with the nature of the buildings to which it was attached. The glory of an Italian or Dutch garden is its noble terraces, vases, statuary, and antiquities—not sprinkled about, busts springing like mushrooms out of green lawns, and statues peering like satyrs from amid the branches of trees—but connected in a formal but graceful arrangement; the fountains not in imitation of purling rills bubbling from unhewn rocks, but wrought up by the refinements of high art, presented as ornaments, not as imitations of wild nature.

All this has been carried out pretty well in the present arrangement, with the exception of the natural rock-work and waterfall in the corner, but which is here quite admissible, on account of the skillful painting at one end of the garden, of a landscape with mountains, hills, trees, water, etc., which produces happily the effect of an indefinite continuation of the wildest portion of the horticultural scene. This piece of rock-work is very naturally arranged, more especially as its elevation above the general level has a pleasing effect, on which the eye rests with satisfaction. It appears as a portion of the natural

scenery of the place. In this case a dark grotto or cave under the cataract forming a passway to the main apartments of the pavilion, has been constructed, and the gayest of the alpines, mosses, heaths, and ferns in rich beards of green, grey, and gold color, ivy and stauntonia, have been planted, but not too profusely to hide the picturesque blocks of which the rockery is composed. This garden, in the main, consists of broad walks, of the most vivid colors of shrubs and flowers in well-kept borders, smooth and emerald plots of turf, graceful vases filled with choice and beautiful plants, and at the sides a dark background of massive evergreen, deciduous shrubs and trees, with a flowering century plant and stem about forty feet high, towering to the canvas roof in the centre.

R. B. Woodward has embellished the platform at the entrance with his usual handsome display of tropical and other plants and flowers.

Messrs. Miller & Sievers, from the Exotic Gardens, exhibit many specimens of choice plants, with many cut flowers of Gladioli, Dahlias, Roses, Fuchsias, succulent plants, etc.

Thomas Saywell, nurseryman and florist, Lombard, between Jones and Leavenworth Streets, has added greatly to the beauty of the floral and plant display, by exhibiting a large and splendid variety of Gladioli, Dahlias, Roses, etc.

From Garey's Semi-Tropical Nurseries both fruit and trees of the famous Garey's Mediterranean sweet Orange. Some of the fruit is preserved in bottles with alcohol, and is very fine and large. R. J. Trumbull, agent, Sansome Street, exhibits Tree-ferns, seeds, and horticultural stock and ornaments.

On the entrance platform is shown a very extensive variety of handsome

and ingenious rustic work by T. Duffy, northwest corner O'Farrell and Leavenworth Sts., S. F. Here are beautiful jardinières of all sizes, shapes, and prices. Tables, chairs, sofas, lounges; hanging corner and side baskets, and every variety of rustic and rock works; vases, fountains, whatnots, and all other styles manufactured to order. All this rustic wood work is mounted on castors; can be moved with ease, and is water tight; can be watered in the parlor without soiling anything. Conservatories, gardens, and bay windows are furnished with all these and many other kinds of ornamental rustic works, with fern cases of all sizes.

W. H. Murray, of the *Journal of Commerce*, makes a most extensive and miscellaneous exhibit with samples of the productions of the Pacific Coast, but especially of California. Here is an example of the vast possibilities of this State, and the belief will suggest itself to the visitor that all the wonders of our land have not by a great deal been revealed. A reporter of the *Evening Bulletin* very justly observes:

At each succeeding Fair something new has been exhibited. This year one of the greatest novelties is the demonstration of the fact that the giant cactus which grows in large quantities on the Mohave desert, can be utilized in the manufacture of an excellent quality of paper. Side by side may be seen the stalk of the cactus and the paper manufactured from it. The latter is firm and smooth, and seems to be of as good quality as that which contains a large percentage of "stock," or old rags. Every part of the plant except the bark and roots is devoted to the manufacture of this paper. The plant grows to a great size, there being sections on exhibition which are a foot and a half in diameter. A photograph of one of

these cacti shows the mode of the plant's growth on the desert, and gives an idea of the barren character of the land in which it roots.

There are on exhibition two boxes of raisins prepared by the Alden process, which are equal in appearance to the choicest raisins imported from abroad.

There is a stalk of corn on exhibition over fourteen feet in height, and from it have been taken a few ears, one of which would make a meal for a small family. There is an excellent display of melons of different kinds, and a mammoth squash is on exhibition which hints at an astonishing growth. There are pineapples, bananas, cocoanuts, and other products of Mexico and the South Sea Islands, for the productions of these regions are also our own in a mercantile point of view. The grain displayed has been kindly loaned by the Central Pacific Railroad, and is that exhibited by them at the Centennial Exhibition. The exhibit of fruit is fine, the grapes and peaches surpassing anything which can be raised in other parts of the country. R. B. Blowers, of Woodland, exhibits a cluster of grapes which is fully eighteen inches long by a foot wide, and which will weigh many pounds. The peaches are most beautiful in color, those from Sacramento and San Joaquin valleys being the largest and finest in appearance.

R. B. Woodward exhibits in a glass case three curious and interesting species of the *Nepenthes* or Pitcher Plant, viz.: *Darlingtonia Californica*, *N. Saraceniana*, *N. distillatoria*, and *N. ampullacea*. About twenty species of these remarkable plants are known, by far the greater part of which are natives of Borneo, Sumatra, and the adjacent islands of the Indian Archipelago. The oddity of the foliaceous organs in this genus, with their curious terminal pitch-

er-like appendages has created great attention among botanists. The size and shape of the pitchers vary much in the different kinds. One sort has the blade of the leaf eighteen inches long by seven or eight broad, and the pitcher twelve inches long by six in diameter, of a broad ampulla form, with two fringed wings in front.

The exhibit of Oregon has been enlarged, a stand having been taken to the right of the space occupied by the California Wire Works. There are fine specimens of the different woods native to Oregon, among which are samples of maple and cedar burl, which takes a fine polish.

There is also a large exhibit of fruits dried by the Alden process, including apples, pears, plums, etc. A new fruit-dryer—price \$80—is on exhibition near the Market Street end of the hall, and the process of drying and preserving fruit can there be observed. Nearly all the fruit which is exhibited by Harris & Bradley, the owners of the machine, has been dried at the Pavilion. Connected with it is a new water-heater, which can be used for laundry purposes, and is also useful to milkmen and dairymen.

There is an exhibit of fruits dried by the Walter process, which claims to have some advantages over the Alden fruit-dryer. The fruits thus prepared are of fine appearance. There is an illustration of the uses to which the cocoanut can be put. The milk is drink, the meat food, the shell household utensils, the husk manufactured into ropes, nets, mattings, etc. B. F. Stivers exhibits a large collection of specimens of different California woods, which are worthy of an examination. There is a fine exhibit of broom corn, with specimens of brooms and brushes made therefrom. There are large bunch-

es of leaf tobacco, of California growth, and to complete the list of staples which California is capable of producing, is a specimen of cotton, grown by J. W. Easting, six miles west from San Jose. The cotton is white, fine, and of good staple, and shows what may be done in this direction. It was planted April 8, 1875, on ground planted for the previous ten years with wheat and barley. The ground was plowed twice and no manure was used. The cultivator was used only once. It was necessary to go 116 feet to surface water. Yet the cotton ginned 400 pounds to the acre, and the plants averaged about 40 balls each, all of which opened.

ALAMEDA NURSERIES.

The flower gardens and conservatories of William Meyer, whose depot for sales is No. 339 Bush Street, San Francisco, are situated in one of those delightful suburbs of Oakland (and we may add, too, of San Francisco), on Pacific Street, between Webster and Third Avenue, Alameda. Here are about seven acres of rich land, well stocked with all kinds of hot-house plants, specimen evergreens, trees, shrubs, Roses, Pinks, Dahlias, Gladioli, and a multitude of old, as well as the newest flowers, from all parts of the world. This establishment is very complete, uniting the cultivation of all the choicest flowers for making bouquets, flower-baskets, wreaths, and crosses, and for all the purposes for which flowers now-a-days are so largely and successfully used. Mr. Meyer is one of, if not the oldest, florist on our coast, or in our metropolis, having been in the business for the greater portion of fifteen years, and is widely and most favorably known for his kind and obliging disposition, liberality, and devoted attention to his business, to which agree-

able and valuable qualities of mind and heart not a little may be attributed to the ameliorating influence that gardening generally possesses for its votaries, whether amateur or professional men. Mr. Meyer's location across the Bay is indeed admirable, being almost entirely sheltered from very heavy fogs and high winds. Fine old Oaks are there in plenty at no great distance, while thousands of bright and variegated flowers dazzle the eye, and charm you with their fragrance, beautiful shrubs and the best and rarest evergreens being planted around; and nursery rows upon rows of smaller ones bestow a pleasing symmetry to the sight, and the bright leaves of the larger trees "wave on high their plumes of green." This is, indeed, a delicious and charming retreat for the proprietor at such times when he is not employed in attending to his floral store on Bush Street. The growth of Oakland, Brooklyn, and Alameda is simply wonderful, and surely in a few years these suburbs will be exactly to San Francisco what Brooklyn is to New York. Here is a good field alone which offers a fine prospect for demand for plants from so old, experienced, and accommodating a florist and nurseryman as Mr. Meyer. Here are the most delightful roads and drives imaginable around his nursery, and where some of the loveliest residences are or will be located. Here mansions and cottages embedded and embowered with roses and other brilliant flowers, with luxuriously laid-out gardens, with the greenest lawns, will certainly greet you. Here is the glorious region and climate for variety and beauty to be displayed in the culture of flowers. How little is really known, and how few among us rightly appreciate the many floral beauties of this highly favored and remarkably prolific State.

WOODWARD'S GARDENS.

The continued popularity of these gardens, partly with reference to the good specimens of many varieties of the trees, evergreens, and miscellaneous plants therein, both hardy, semi-tropical, and tropical, and the numbers of beautiful and rare plants in the conservatories from all parts of the world (due mostly to the judicious collections at different times made by Mr. Schuman, the superintendent), together with the interesting department of zoology in the number of living beasts, birds, and fishes, besides the numerous cabinets of the same animals stuffed and mounted (due to the artistic skill of Mr. Gruber)—we repeat, the never-failing favor with which these splendid gardens are viewed by the public, does not at all surprise us. As fast as the money is received from the numerous visitors to this "park of the Pacific," the enterprising proprietor seems to love to lay it out in new and attractive features and improvements, to add to its already rich and varied departments. The amount of æsthetic, moral, and instructive benefit that Mr. Woodward confers on the people by this delightful and ever growing institution can not be over-estimated. All these objects work advantageously to the general good, and the country at large feels their beneficial influence. Every one must admit that this noble exhibition of natural objects in animals and vegetation, and the works of art in pictures and other matters are fully deserving of the liberal support the world gives them. The continued popularity of the zoological portion of the establishment is evident from the general crowded state around the cages, paddocks, and tanks of the animals, birds, and fishes. We are glad that all these animals are at pres-

ent in excellent condition, and the mortality for a long time past has been very moderate. What victims have ever succumbed here were mostly from tropical countries, and the deaths were undoubtedly owing to the comparatively sudden changes of our climate in this city.

The Museum is a similar attraction to that which the Zoological department possesses for a great many visitors, and it is often crowded, and the objects it contains examined with great curiosity.

We are pleased to see that the aspect of the interior of the greenhouses improves from year to year—the development of the plants, and constant arrival of novelties of surpassing beauty and attractiveness, especially to the florist, who will always find something new to admire.

Some day we hope to see here a house and pond for the famous and monstrous Victoria Regia Lily. The leaves of this plant in their native state reach over seven feet in diameter, and the flower a foot and a quarter across, with pure white petals, and central rose-colored ones. The tank should be at least twenty-five feet in diameter, and the temperature of the water about 80°. The earth should be something like strong peat. It has been grown in England and the United States for some years, and has delighted astonished thousands by the size of its leaves and the beauty and fragrance of its flowers. It has been grown in many places in England to even larger size than it attains in its native rivers.

PUBLICATIONS RECEIVED.

We always hail with pleasure all the guides, pamphlets, etc., so handsomely illustrated, which issue, from the zeal-

ous, intelligent, and prolific hand of James Vick, the well known florist of Rochester, New York. There is much instruction and good sense, with a pleasant smack of humor withal, in his writings and catalogues. Mr. Vick remarks that, "There is a great satisfaction in knowing that our flowers not only please, but exert an influence for good on all who behold them, some of whom are sure to become imitators, if not successful cultivators." This fact, we may add, not only cheers professional cultivators of flowers and seeds, but also writers of books and editors of magazines devoted to that delightful subject.

In his *Floral Guide*, No. 3, for 1877, Mr. Vick has written interestingly on exhibition of flowers, propagation of Hyacinths, autumn making of lawns, London pride, wild flowers of Kansas, preparing plants for winter, and a very pleasing chapter on flower baskets.

From T. S. Hubbard, Freedonia, N. Y., "Wholesale Price List of Grape-Vines, Fruit Trees," etc., autumn, 1877, with lists of general nursery stock. Here are to be found all the most valuable Eastern species of hardy native Grapes, with an assortment of other fruits, both large and small.

"Catalogue No. 10, of Novelties and Plants," from the horticultural establishment of Louis De Smet, of Ledeberg-les-Gand, Belgium.

"The Aquarium, Illustrated Journal," W. C. Coup & Reiche, Proprietors, N. Y. This publication is full of highly instructive and descriptive matter relating to many fishes and crustacea, etc., and is beautifully and accurately illustrated with these interesting subjects.

"Premium List of the Indiana State Fair," to be held at Indianapolis, September 24th to the 29th, 1877.

"Mineral Map and General Statis-

tics of New South Wales, Australia," 1877.

"Semi-Annual Wholesale Trade List of the Niagara Nurseries," for the fall of 1877, E. Moody & Sons, Proprietors, Lockport, N. Y., for wholesale purchasers.

We have been much gratified by the many publications from the extensive nurseries, and fruit, flower, vegetable, and seed establishment of Ellwanger & Barry, Rochester, New York, during the first portion of this year. No doubt this old firm aims to be the completest and most reliable one in this country, and no expense or exertion is spared in making it so. Whatever is valuable or new in every department of the nursery business may certainly be found on their premises. It is almost perfect.

FRUIT CULTIVATION AND REPORT OF FRUIT AND VEGETABLE MARKET.

We quote the following excellent article from the *Bulletin* as a prelude to our remarks on the fruit and vegetable markets:

Evidences accumulate that the Grape crop of the present year will be much larger than ever before in this State. With the present low prices of wine, and the large stock on hand, the question, What shall be done with the Grapes? becomes one of importance to individual growers, and the industry in general. We have heretofore published the views of some of the leading wine growers and dealers of this city upon this subject. From the standpoint of those whose views we gave, the course recommended to convert their Grapes and poorer wines into brandy is founded on sound business and prudential reasons, and will probably be adopted to a great extent by the large growers generally, in the disposal of their own Grape crops.

But there will be a large number of smaller growers who are not provided with facilities for distilling either their Grape crop of the present season, or their wines on hand into brandy, and are not able to incur the first expense of such facilities, or to wait for the sales of the brandy when made. This class probably represent a great proportion of the coming crop of the State. They have depended on selling their Grapes in a raw state to wine and brandy makers, and had hoped in this way to make fair profits and quick returns. To this class, under all circumstances, the disposition of the Grape crop becomes of vital and immediate importance. The facilities for transporting fruit to an Eastern market in refrigerator cars as slow freight, and at lower rates than have heretofore obtained, will doubtless increase the demand for those markets for the best article of table Grapes. None but the best table Grapes can be disposed of in this direction. We would suggest that all who have quantities of this class of Grapes look into the matter of shipping East, and, if they find it promising, dispose of a part of them at least in this direction. Again, raisin making in this State if conducted upon careful and economical principles must become a profitable and reliable business. The quality of our fruit for this purpose and the favorableness of our climate are not excelled in the best raisin-making countries of Europe or Asia, and labor is becoming cheaper every year. Again, we have a very large home market within the United States, which our raisins can enter without duty, and with less transportation than foreign raisins. We would, therefore, suggest that those who have raisin Grapes look in this direction for their disposition, not only for the present season but as a permanent business in

the future. The best raisins of Spain and Turkey are cured in the most simple and least costly manner, and the best raisins that can be made in California can be made in the same manner. The soil of many of our best vineyards is the best drying surface, and the bulk of the crop can be cured on the ground without danger of rain or damaging dews, and with no outlay for preparation. There will be no investment in raisins made in this manner except the Grapes themselves—of nominal value—and the labor of picking and caring for them. And here again comes in the principle of commerce and business, that the more good raisins we produce the more they will attract attention and the greater number of buyers will enter the market. There is no danger that we will make too many good raisins. The third suggestion we would make in regard to the disposition of the Grape crop is to turn it into pork. Pork is one of the staple articles of food—always has been, and probably always will be. Lard is one of the necessities of every household in the land. Both pork and lard are articles of import from the East to this State in large quantities, and at good profits. There is a market for these articles at our very doors every day in the year, and the cash is always ready to purchase them. Upon general principles, then, it will be good business policy to convert our unsalable Grapes into pork and lard—salable articles. But will Grapes make good pork and lard? The universal testimony of those who have tried it in our State, is that no other feed will fatten hogs faster than Grapes. We have heard many farmers of intelligence and of experience in this particular, assert that Grapes are worth ten dollars a ton to feed hogs on. Ten dollars a ton for

Grapes on the farm will certainly not be a losing business. This year, when all kinds of grain is so high, and the Grapes are so plentiful and likely to rule so low, it strikes us that this is an important suggestion, and is worthy of a practical execution. It is certainly a very quick mode of turning Grapes into money, and if they are worth ten dollars a ton fed in this manner, there is indeed more money in them turned into pork, than any other mode of disposition promises. In looking at this matter as now presented, we have made no distinction between varieties or localities. Growers will consult these questions for themselves.

About the beginning of last month (August) the fruit stands were abundantly supplied with all seasonable varieties. Strawberries came in more plentifully, and with a lessened demand consequent upon the abundance of other varieties of berries and fruits, fell to fifteen cents a pound. Blackberries were likewise plentiful and cheap. Peaches were received in large quantities, both from the rivers and the foot-hills, and were an improvement in size and flavor. By the box or basket they sold at \$1.50 to \$1.75 from the market stands. There was some improvement in the size and flavor of Grapes. Vegetables were in large supply, and excepting asparagus, which was scarce and high, all the seasonable kinds were lower—as low as they usually get to be in this market. On or about the 10th of August Cantaleups and Watermelons were reduced in price. The common qualities of Peaches fell from eight to five cents. Figs came in in large quantities, which brought down the market price for them. Lemons were scarce, while Limes were plentiful. Green Peas advanced one cent. String Beans came in plentifully, and fell two cents.

About the middle of August, according to the statement of that valuable sheet, the *Commercial Herald*, there was a liberal supply of all seasonable varieties. The assortment was large, and the display was the most attractive of the season. The demand for Pears was confined to Bartletts—all other varieties were dull, stock accumulating everywhere. Apples of choice quality found a ready sale for those of good quality and well packed; these found liberal buyers, but the stock offering was generally poor, and such lots moved slowly at quotations. A short Apple crop is generally believed in. Now is the time to be drying common Apples and Pears while the market is shading off, as dried fruit will be in demand at good prices this season. Peaches arrived freely. Plums were in good request. Strawberries were a shade lower, as but few were wanted. Sicily Lemons were scarce. Bananas were in good supply. Watermelons and Cantaleups were very abundant. Grapes showed a decided improvement in quality, better varieties came forward. We are indebted to Howe & Hall for the following quotations: Apples—Choice, \$1.25 to \$1.50 per box; common, 50c. to \$1 per box. Pears—Bartlett, 90c. to \$1.25 per box; cooking, 50c. to 75c. per box. Plums, 6c. to 8c. per lb. Prunes, 8c. per pound. Peaches—Choice, \$1.25 to \$1.50 per box or basket; common, 50c. to 75c. per do. Strawberries, \$4 to \$5 per chest. Raspberries, 12½c. to 15c. per lb. Blackberries, \$6 to \$8 per chest. Figs, 8c. to 10c. per lb. Oranges—Tahiti, \$30 to \$35 per M. Lemons—Sicily, \$17 per box. Limes, \$14 to \$15 per M. Bananas, \$2 to \$3.50 per beh. Pine Apples, \$6 to \$8 per doz. Cocoanuts, \$5 to \$6 per 100. Watermelons, \$5 to \$15 per 100. Cantaleups, 50c. to

\$1.50 per dozen. Grapes, Muscat, \$1.50 to \$2 per box; common, 50c. to \$1 per box. Crabapples, 3c. to 4c. per lb. Quinces, \$1.25 per basket. Dried Fruit—Eastern Apples, choice, 10c. per lb; Peaches, 7c. to 10c. per lb.; Pears, 7c. to 8c. per lb.; Plums, 3c. to 4c. per lb.; pitted, 12c. to 13½c.; Figs, white, 6c. to 8c. per lb.; black, 5c. to 7c. per lb.; Prunes, 12½c. to 17c. per lb.; California Raisins, \$1 to \$2 50 per box. Vegetables—Cabbages, 75c. per ctl.; Cucumbers, 40c. to 50c. per box; Tomatoes, 30c. to 40c. per box; Green Corn, 10c. to 20c. per dozen; Summer Squash, 40c. to 60c. per box; Green Peas, 2c. to 3c. per lb.; String Beans, 2c. to 2½c. per lb.; Garlic, 2c. per lb.; Okra, 5c. per lb.; Egg Plant, 50c. to 75c. per box.

About the 16th of last month (August), Grapes and Peaches were plentiful. Irish Potatoes rose about a cent a pound, while Sweets declined about the same. Lima Beans, owing to large arrivals, fell about 50 per cent., while Watermelons and Cantaleups in the poorer grades dropped a little.

Editorial Cleanings.

THE large foreign trade of California in fruit and wines, becomes no mystery when it is known that the State has 3,000,000 fruit trees and 35,000,000 grape vines, and harvests from 300,000,000 to 500,000,000 pounds of fruit yearly. She produces a large surplus, and foreign trade follows as a matter of course.

GREENHOUSE CLIMBER.—An English gardener says that *Clematis indivisa lobata* is a most desirable greenhouse climber, for furnishing quantities of pure white blossoms during the winter and spring months. The long pendant wiry shoots are sometimes covered with masses of bloom for many weeks.

NEARLY 30,000 alligator skins are yearly used by the boot and shoe manufacturers of the country. Only portions of the hide are serviceable, and these are packed in strong brine and shipped to the northern tanner, who keeps them under treatment from six to eight months before they are ready for use.

GRAVEL WALKS.—A correspondent recommends the following mode for making tarred walks: First gravel the walk in the ordinary way, but do not give it so thick a coat as usual; beat well down to make a perfectly smooth and even surface, which coat well with tar. When this is done, put the final layer of gravel on the top—three-quarters of an inch will be quite sufficient, and again beat down, using the back of a spade for the purpose. The walk so prepared must not be trodden upon for two or three days, at the end of which time it will have become perfectly hard, and will not be affected by the heaviest fall of rain. The work must be done in fine weather, and the plan will be found better than using cement mixed with gravel.

WASH FOR TREES.—Charles Downing recommends soft soap as a wash for the trunks and large branches of trees, put on as thick as it can be used. Potash is equally good, a pound being dissolved in six quarts of water, and put on with a stiff brush—the brush being kept in water when not in use. Care is necessary to prevent the potash from coming in contact with the clothes or hands. Mr. D. objects to the use of lime-wash, as giving the trees an unnatural color, and forming, as an additional objection, a hard stiff coating on the bark. This objection may be obviated by using fresh or sharp lime, and making the wash so thin that it will

scarcely color the bark at all—it will then do about as well as potash. It should also be borne in mind that a stronger wash may be used in early spring or in autumn while the trees are dormant than during vigorous growth; and that the soft thin bark of young trees will not bear so strong or caustic a wash as that on older trees.

THINNING FRUIT.—A writer in the *Practical Farmer* mentions the practice of a neighbor who keeps his crop of Apples properly thinned by pruning, preventing the dense mass of shoots often seen, and the profuse crop of fruit on them of small size and poor quality. This neighbor's Apples are fully twice as large as most of the specimens grown elsewhere, and of fine appearance and flavor. Now, he does not adopt the common practice of waiting till the tops of the trees become a mass of brush and then thin this out, but he begins as soon as the young trees are set out, reduces the branches, places them at regular distances, and keeps the heads properly thinned by preventing a thick growth.

THE VEGETABLE GARDEN.—We can not make it rain at will, but if the garden is suffering from drought, we can do a good deal toward supplying the necessary moisture. One means of doing this lies in keeping the ground stirred. Another lies in the application of certain agents qualified to absorb moisture from the atmosphere. Prominent among these is potash, largely represented in hard wood ashes. This being the case, we must conclude that an application of hard wood ashes may be profitably made to lands subject to drought. Some persons will tell us that the ashes would cause the crop to "burn out" in dry weather, but understanding as we do the absorbent quali-

ties of potash, we are always willing to risk it. Common salt is a good application, but it must be applied with care, as a large quantity would seriously injure most plants. The usual plan is to sift it thinly over the surface of the ground and leave it uncovered. Land plaster is often applied to act as an absorbent for arid soils.

CALIFORNIA PRODUCTIONS.—Several agricultural experiments recently made in California must be considered as yet in the condition of doubt. Among these are the attempts to cultivate the Banana, Sumach, Peppermint, and Persian flea powder plant. Peppermint in Santa Clara County yielded as much as forty pounds to the acre, but the land was not suited to the plant, which it was thought might do well on the tule. Sumach is grown in the same county, but we believe that the tanners depend upon importation for their supply. About fifteen hundred tons are consumed annually in this State. The flea powder plant is grown in San Joaquin and Amador counties, and the product has obtained a favorable reception in the market. The Banana has ripened at various places on the Southern Coast, and high estimates are made of the profit to be derived from an acre, but the experience of years will be necessary to prove the trustworthiness of the figures.

KEEPING ROSES IN BLOOM.—As soon as they have formed their first flowers in the open ground, pinch off the end of the first shoot, and as soon as the Rose is fully opened pick it off. No Rose should be left to fade upon the bush, as when so left it exhausts the plant in the formation of seed. As the plants grow, pinch back the ends of the shoots when they have grown five inches, and rub out all puny shoots,

thus keeping the plants in a rounded, open bush form. If strong shoots alone are left to grow, they will soon control the strength of the plant, and the flowers will be few and often of imperfect form. Should the season be hot and dry, a mulch of fine, fresh grass or sawdust, or moss from the woods, should be placed all over the soil, three inches deep, and at night watered thoroughly, not sprinkled, but wet like a day's rain. The Hybrid Perpetuals or Noisettes require this pruning or pinching back, more promptly than the Teas, Bengals, or Bourbons. —*Country Gentleman.*

A NEW line of botanical research has been entered upon by Dr. Peterman, of the Belgian Academy. He has endeavored to ascertain why it is that seeds obtained in some climates are better than those obtained from other climates; and he has discovered, thus far, that the superior fertility of the seeds of clover, fir, and pine, taken from Sweden, between the parallels of 50° and 60°, are due to their high germinative power, their great purity, and their high absolute weight. His subject is one which could, with great advantage, be investigated in this country.

A SONOMA, CAL., man has raised five Cork trees, which are now twenty-five to thirty feet in height, and from ten to twelve inches in diameter in the trunk. One coat of cork, one and one-fourth inches thick, has been stripped off. The tree resembles the Live Oak in foliage. The seeds were brought from Spain twenty years ago.

SUN-PRESERVED STRAWBERRIES.—Sweeten the berries to your taste; let them stew a little; turn them into platters or bright, shallow milk pans. Having

previously cut covers to the same from old lace curtains or mosquito netting (these covers having their edges turned down, and strings run through them to make them close fitting), place in the sun for a day or more, and then put into jars, and you will find these preserves far preferable to canned Strawberries, as usually done. Your covers will answer for drying sweet Corn, etc.

SOWING RYE.—In many portions of the San Joaquin Valley favorable experiments have been made with Rye, and it has been found to do remarkably well as a follower of wheat. The constituent elements of the soil that are wanting to produce Rye do not seem to be destroyed by successive croppings of wheat, and fields that are almost exhausted seem to produce a good crop of Rye. When sown early in the Fall it makes excellent feed for stock for several months, and after taking the stock off it matures and brings a good yield of straw and grain.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING AUGUST 31st, 1877.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 18 Market Street.)

BAROMETER.

Mean height at 9 A. M.	30.08 in.
do 12 M.	30.08
do 3 P. M.	30.07
do 6 P. M.	30.07
Highest point on the 20th at 3 P. M.	30.13
Lowest point on the 4th at 9 A. M.	29.98

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	66°
do 12 M.	71°
do 3 P. M.	71°
do 6 P. M.	66°
Highest point on the 26th at 12 M.	80°
Lowest point on the 15th at 9 A. M.	62°

SELF-REGISTERING THERMOMETER.

Mean height during the night.	57°
Highest point at sunrise on the 26th.	62°
Lowest point at sunrise on the 7th.	51°

WINDS.

South-east on 1 day; south-west on 1 day; west on 29 days.

WEATHER.

Clear all day 8 days; cloudy on 5 days; variable on 18 days.



AMERICAN COWSLIP, OR SHOOTING STAR,

(*DODECATHEON MEADIA.*)

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. VII. SAN FRANCISCO, OCTOBER, 1877.

No. 10.

MY GARDEN BORDER.

—
BY R. J. TRUMBULL.
—

It is about six feet wide by two hundred feet in length—sizeable enough to demand both time and attention to keep it in order. The soil is mostly clay, with an abundance of small broken stones: It would be easier to cultivate if the soil were of almost any other nature, for if not disturbed, it is disposed to, or rather will, bake and become almost unmanageable. Yet it is astonishing how much of the really beautiful of Nature's treasures it may be made to evolve by a wise exercise of the muscles. I had almost forgotten to say that the border runs from east to west, and is wholly exposed to the rays of the sun throughout the entire day. It is edged this year with the Ice Plant. Can't say that I am well pleased with it. I intend to try something else next spring. This plant is easily propagated. Cuttings made at random during the spring, and planted one foot apart, and deep enough to cover the first joint, will, if watered, produce an edging in a very short time.

Before, or immediately after the first

rain, from four to six inches of well-rotted horse manure (cow manure, if obtainable, would be better), is spread over the border, and as soon thereafter as possible it is dug in. Am of the opinion that any soil, however naturally rich it may be, will be livened and improved by a periodical application of manure, or in its absence, bone-dust or guano. A lively soil will produce lively, brilliant, and I might say, animated flowers.

There are two months (dreary months they might be called—December and January), when flowers are very scarce, and what few there are look sickly, and emit but little fragrance. Our gardens then look gloomy indeed, and it would seem that their former charms would never return. I find, however, that much may be done to make my border both beautiful and cheery during this period. If I plant out in October or early November, an assortment of flowering bulbs, such as Snowdrops, Narcissus, Tulips, Hyacinths, etc., I know that when Christmas comes I shall have flowers to enliven my border, and sufficient to cut to bring some of my parlor vases into use. We may have out-doors, if we will, in most parts of California,

flowers all the year round. My border, then, is first stocked with flowering bulbs, and as these flower and mature they give way to others—the aim being to keep up an uninterrupted succession of bloom. To-day, as I walk along my border, the first thing which takes my attention is a Hybrid-perpetual Rose about seven feet high. It does not look well, yet it has bloomed quite freely this season. At present the flowers are rather small though well formed and delicately fragrant. I wish I could create and maintain a uniform temperature in the atmosphere which surrounds this Rose above ground, and that which comes in contact with its roots, every vestige of mildew which now mars both the beauty of its leaves and buds, would soon disappear. Sulphur (flour of) scattered over Roses in winter and dug into the soil, and soot, and the free application of liquid ammonia, will assist Nature in shaking off the atmospherical parasite, but none of them have proven themselves absolute remedies. Some do say, “Discard the Roses which are so liable to disease, while you can grow the fine French, ever-blooming Tea Roses, whose buds are so delicate and fragrant, and whose bloom is so constant.” Much as I admire the many beautiful Tea Roses which evidently find as much, if not a more congenial home here than in sunny France, or elsewhere, I would not despise these old-fashioned, old home Roses that bloomed for me in childhood, and made fragrant for me the atmosphere in the garden corner where I spent many a happy hour. Rather, should this old, pleasant acquaintance be still remembered, and as far as in our power its life be freshly preserved, that our pleasure in its acquaintance may be continued.

A small clump of Double White Bal-

sams are growing near the Hybrid Rose. Six weeks ago they were in their glory, but now, while flowering rather freely, the branches are drooping with the ripening seed pods, some of which will snap at the touch of your finger, and scatter their seeds. This reminds me that if two to three seeds are put into a five-inch pot now, the pot being filled with rich soil, flowering plants may be had in the house during winter. Florists use this flower during winter by wiring them and arranging them in bouquets. They are invaluable for this purpose. A simple and very pretty ornament may be made by taking a common saucer and edging it round with the leaves of the Balsam, and filling in the centre with its flowers. If water be put into the saucer and it is kept in a cool place, the flowers will continue fresh for several days. Said a gentleman to me the other day while pointing to this flower: “What do you call that?” “That is a Balsam,” I replied. “That,” said he, “is the Lady’s Slipper. I haven’t seen it before in years. My mother used to have it in her garden, and she thought it was a beautiful thing.” Need it be said that he lingered by this flower, and that for him it had more of interest and of beauty than hundreds of others which came under his notice as he afterwards passed through the garden. Mother’s flowers are precious flowers, for around them are gathered the sweet memories of our earliest days. They take us back to her whose tender hands nursed them into bloom and beauty, and us into manhood’s strength, intensifying our love for her and the sweet, delicate objects of her care. I have but commenced with my border, yet I have written so much that for the present I must cease. I hope, however, soon to resume the subject.

THE DATE PALM.

BY G. P. RIXFORD.

The Date Palm is one of the most useful and interesting members of the vegetable kingdom. It occupies the first rank as a food producer in the countries where it flourishes, and is to the people of northern Africa at once the aliment for man and beast. The tree succeeds well in nearly all parts of California, and has been known to blossom and set its fruit, but our seasons are too short to bring it to perfect maturity. To find, therefore, a variety perfectly adapted to the climate of this State would prove of great interest to horticulturists. Such a variety it is thought has been discovered. The *Revue Horticole*, a horticultural magazine published at Paris, contains a letter from a resident of Algeria, giving an account of a Date Palm which it is thought will thrive and perfect its fruit wherever the Orange can be successfully grown. Thinking the matter of considerable importance we herewith submit a translation of the letter, as well as the remarks of the editor :

A DATE PALM ADAPTED TO THE MEDITERRANEAN REGION.

There are few persons unacquainted with the Date. The fruit is essentially African, and, thanks to the facilities of communication, is found to-day in all parts of Europe. Although the tree may live in a climate relatively mild, and bear fruit at times, still the fruit does not acquire the qualities that render it eatable. It was then greatly to be desired that a variety should be found less sensitive to cold, and more precocious (*hative*), one that with less advantageous climatic conditions should be capable of producing fruit, that if not quite equal in quality to that of

Central Africa, would at least be palatable, and become a wholesome article of food. Such a one has been found, and we are indebted for its discovery to M. de Lannoy, late Chief Engineer of Roads and Bridges at Jemmapes, Algeria. Here is what he writes us :

JEMMAPES, November 7th, 1876.

My Dear Sir:— I told you, I believe, during an excursion that we made together from Paris to Sceaux, that in a little corner of Algeria, where I live, known as Jemmapes, a village situated twenty kilometres from the sea, between Philippeville and Bone, I have a Date tree that ripens its fruit perfectly, although planted in the climate of the Orange, more than three hundred kilometres from the Sahara, and I will add that in all probability this Date will also ripen its fruit in a favorable exposure, between Toulon and Nice. That observation fixed your attention, and to-day I take the opportunity to furnish you with details that may interest some of the readers of the *Revue Horticole*.

The Date tree, like most other fruit trees, never exactly reproduces itself from seed, and in the oases of the Sahara Desert, the Arabs are acquainted with more than a hundred varieties of which the fruit is quite dissimilar. The tree suckers freely, and when an Arab desires to make a plantation he chooses from the groves of his neighbors the variety that he believes will prove best adapted to his soil and altitude, and the quantity of water at his disposal. The suckers of the Date tree planted during the first half of May in a soil broken up to a depth of at least four feet, and well manured, root with the greatest facility in Algeria during the summer.

As with the seed of the Pear, Apple, and Vine, that of the Date tree, as

we have observed, never reproduces its parent. There are precocious varieties that ripen their fruit by the middle of September, other late kinds that mature their crop only in the very hottest localities, and then not until the end of October. Among the precocious species we find the *Amra* and the *Al-lona*, and among the late species the *Deglot Nour*. The fruit of the former, like our early Apples and Pears, keeps but a short time, while the latter produces those delicious translucent Dates that decorate the windows of the Paris confectioners, and which keep from year to year. There are common varieties marvelously productive, such as the *M'kontiche degli* and the *Lahua*, the dried fruit of which being without much flavor is not exported, but forms the principal food of the inhabitants of the Sahara.

This early maturing of the fruit indicates that the tree requires a lesser degree of heat in order to ripen its crop than an ordinary one. Thus, then, in selecting in the oasis of Biskra a very early bearing Date Palm, and one that would there ripen its fruit by the middle of September, one may hope to see it ripen its fruit as far north as the Orange can be grown, by the month of October. It was with a choice thus made that I have been able to gather magnificent bunches of Dates well ripened, in a region where such a phenomenon was never before witnessed.

I do not wish to exaggerate the merits of my discovery. My Dates are not comparable to those beautiful *Deglot Nour* that you see at Paris, but they are very sweet and of an agreeable flavor, though the pulp seems soft and mellow a few days after gathering, as with the greater part of the early Pears, the quality of which can not be compared to certain late varieties, such as

Beurre d'Aremberg, Doyenne d'hiver, and many others.

"The Date Palm," says the Arab, "plunges its feet into the moisture of the earth and its head into the fires of heaven." It is very partial to manure. Near each Palm tree in an oasis is dug a pit that receives the washings and all the refuse of the stable and the house. The one that I have planted is situated a few metres from a stable, and its foot is sprinkled by the waters of a fountain, and is therefore placed under the most favorable condition for its health and fruitfulness.

I repeat to you that I am fully convinced that a Date Palm of the variety of that which I possess, fertilized with the Palm of a male tree, mature and vigorous, will give perfect fruit under the pleasant sky of Provence, between Nice and Toulon. In order that amateurs may make a trial with it, I have reserved upon the trunk of my tree three large branches that I shall attempt to root the coming year. At Biskra, a Date Palm requires ten years to become fruitful, but I have waited fifteen years for fruit from mine.

DE LANNOY.

It is not necessary to dwell upon the immense interest that the discovery of De Lannoy has caused, and when one thinks of the valuable qualities of the Date and its great advantages as an article of food, one can not but desire the immediate introduction of the variety of which he speaks. A variety which appears to present great chances of giving eatable fruit in some of the favored parts of France. Therefore, while thanking M. De Lannoy, let us urge him to hasten as much as possible the propagation of this Date.

While multiplication by shoots is the most certain and direct means of obtaining a tree of any particular variety,

on the other hand, a still more valuable sort may be obtained by planting the seeds of this early Date, taking care, according to M. De Lannoy's advice, to have the flower fertilized by the pollen from a male plant whose blossoms are equally precocious.

In the meantime, as this variety is without a name we propose, in order to perpetuate the memory of him who made it known, to name it the Lannoy Date.

FLORA OF AUSTRALIA, TASMANIA, AND NEW HOLLAND.

BY A VISITOR.

Among the un-English forms which we meet with in Tasmania (and also in Australia) are the tree-like Nettles, "armed with a fierce array of poisoned spears, and towering above the human race in height." So sharp is the sting of these Nettles, that it is related of a horse which happened to be stung by one of them, that he became infuriated by the pain, and in a short time died of convulsions.

But one of the most beautiful and striking feature of the Tasmanian forest are the Tree-ferns. They are often of a gigantic size, and quite Palm-like in their appearance. "Some tall and erect like the columns of a temple; others bending into an arch, their wide-spreading, feathery crowns forming half-transparent green canopies, so close together that only a span of the blue sky can peep down between." The stems vary in height from six to twenty or thirty feet, and in diameter from eight inches to two or three feet. So luxuriant is the vegetation, that the stems of these Ferns are often overgrown with other little Ferns, growing on them parasitically; one particular kind wreathes itself round and round

their mossy columns, like living garlands, and the wondrously elegant, stately crown-canopy of feathers (from twelve to eighteen feet long), springing from the summit, bends over in a graceful curve all round, as evenly and regularly as the ribs of a parasol. Far above the Fern-trees and their beautiful parasites huge forest trees soar up aloft, throwing their giant arms about in a gale that is blowing above, while scarcely a breath lifts the lightest feather of the Ferns below. To this beautiful picture must be added the tree-like Grasses, which choke up the spaces between the trees, and we may form some notion of a Tasmanian forest. An additional beauty is given to them in spring-time by the many kinds of Orchis with which the ground is carpeted.

The tracts of heath-land in this country (if we may so call them), must be a beautiful sight—gay with *Epacris*, both crimson and white, which so very much resembles the Heath both in appearance and structure, that Professor Lindley thinks "it really is of no practical importance whether the *Epacris* tribe is considered a distinct assemblage, or a mere section of the Heath tribe." Some kinds even agree with the Heath in the stamens being situated below the ovary, while in others they arise from the corolla; but there is some difference in the formation of the anthers. It is remarkable that only one or two of the Heath tribe are found in the countries occupied by the *Epacris*, which is indigenous in Tasmania and Australia, in the Polynesian Islands, and the Indian Archipelago, in all of which it grows in profusion.

The scenery of the river Huron is very rich. Its banks are clothed with lofty timber; some of the trees are 180 feet high and 28 feet in circumference, covering the ground with a dense for-

est. Much more might be told of the beauties of this favored land, with so fertile a soil and so delicious a climate. The American eye, however, is sensible of one drawback; and "thoroughly to enjoy the luxuriant vegetation, it is necessary to forget the rich and varied verdure of our own forests; for, luxuriant though it be, its prevailing tint is dingy green."

There is one little flower which must be particularly named, because it seems to be to the Tasmanian settlers what the Daisy is to Englishmen, and the Daffodil to us—a kind of universal guest, though "more especially growing on rocky, gravelly banks." It is an elegant white flower called *Diplarrheno Marcea*, which blooms through all the spring and summer. Its three large petals are snowy white, the smaller inner ones delicately tinted with yellow and lilac, and its great tassocks of long reedy leaves flourish all the year round. It belongs to the Iris tribe, and is very much like that flower in appearance.

One other English colony, New Zealand, still remains to be visited. The feature which may be said to be the predominant one in the vegetation of New Zealand is that of sameness, produced by one green mass of forest. Nor is any one family of plants so prevalent over the rest (except, perhaps, the Pines), as to impart a particular character to one part of the island more than to another. The vast number of trees, the paucity of herbaceous plants, and the almost total absence of annuals are, as we learn from Doctor Hooker, "the most remarkable features of the flora." It is alarming to New Zealand settlers desiring to study botany, to hear that "he thinks it may safely be said that the flora of this country is, for its extent, much the

most difficult on the globe to a beginner."

Of the two-thirds of plants peculiar to New Zealand, the greater proportion are exogens. Of the remaining third, not quite one-twelfth of the species contained in it are European; but a much larger proportion, namely, one-fourth, is found in Australia, to the vegetation of which country that of New Zealand bears a closer resemblance than that of any other.

The few genera which were before mentioned when speaking of Australia, as including species with which we are familiar in the United States, are likewise to be met with in New Zealand. Amidst all the foreign forms which meet the eye, an English Silverweed (*Potentilla anserina*) must be a refreshing sight; or a Wood Sorrel (*Oxalis*), or a Sundew (*Drosera*), or any of the Crowfoot tribe (*Ranunculaceæ*). There is one most splendid species of this tribe called *Ranunculus insignis*, with heads of about fifteen large Buttercup-like flowers; the splendid yellow blossoms each an inch and a half broad, and with large handsome leaves. But such sights must be comparatively rare; for the traveler from whatever country, finds himself surrounded by a vegetation that is almost wholly new to him; with little that is at first sight striking, except the Tree-fern and an herbaceous little shrub, called the Cordyline, in the northern parts, and nothing familiar, except, possibly, the Mangrove; and as he extends his investigations into the flora, with two exceptions (*Pomaderris* and *Leptospermum*), he finds few forms that remind him of other countries. Of the numerous Pines, very few recall by habit and appearance the idea attached either to trees of this family in the northern hemisphere, or to those which represent

them in the southern. The only plants which when examined are found to be closely allied with plants of other countries, are those of the Myrtle, Epacris, and Protea tribes, though this resemblance would scarcely be guessed by the general appearance. There are no leguminous plants; an abundance of bushes and Ferns, and very few Grasses; nevertheless some of the arborescent Grasses, which "properly belong only to the tropics," are said by Meyer to be found in New Zealand, even below 36 deg. of latitude, and the Palm called the Cabbage Palm (*Areca oleracea*) is said to extend even beyond 41° of latitude. The now so well known name of New Zealand Flax (*Phormium tenax*) must not be omitted, which grows wild nowhere else, except in Norfolk Island. It belongs to the Lily tribe, and grows, as we all know, in great tufts of long, tough, grass-like leaves.

Some of the flowers are very beautiful. The most striking, perhaps, is one of the composite order, called *Celmisia*, which belongs to New Zealand in common with Australia and Tasmania. The conspicuous looking blossoms are like gigantic Daisies, about four inches wide; the disc is yellow, with a broad, white, pink, or purplish ray; the lower leaves are spreading, straight, and grass-like, and generally covered with thick white wool underneath. This plant grows often in immense patches on the boggy mountain tops in the southern part of the island.

GREAT VALUE OF APPLES.

BY A POMOLOGIST.

According to the well-known experiments of Dr. Beaumont with Alexis St. Marten, and from the actual experience of others, a ripe Apple is digested by a healthy stomach in from one to one

and a half hours. It does not, however, follow from this that after the lapse of this time it is necessary to eat again, but only that within this time the food passes into the form of blood and begins to nourish the body.

One experience after eating Apples is rather an increase of muscular strength and capacity for work, as well as an elevation of spirits, which, under a mixed diet, is often supplanted by feverish symptoms. Even after intentionally eating an excess of Apples I have felt no disagreeable sensation.

Of the Apples that grow upon a single tree the largest are the best. The color, as is known, is the evidence of ripeness, and the deeper the color of an Apple the riper it is. Red Apples should be very dark; the lighter sorts should have a soft, yellow tint; green Apples have usually reddish spots when completely ripe. If a person has not been accustomed to eating Apples, or can not relish them, he should begin moderately, taking only a morsel at first, and increasing gradually from day to day, until he can, without inconvenience, make an entire meal of them. Such a process may be called a gymnastic culture of the stomach.

Apples eaten without proper mastication not only fail to nourish, but cause disturbances, belching, diarrhea, etc. The Apple should enter the stomach in the form of a completely masticated and insalivated pulp. Digestion then immediately commences. But Apples should not be eaten as a dessert. They differ too widely in their nature from other food, and when so eaten are apt to cause flatulence or rumbling in the stomach. It is best to make each meal of not more than two articles, and for this purpose Apples and wheat are the best, the latter being eaten in the form of brown bread.

The objection is often made to a fruit diet that it causes an overfilled and uncomfortable feeling in the stomach, without the real satisfaction of the appetite. But this, as already mentioned, results from the previous bad condition of the stomach, not from the quality of the fruit food. Look at the usual mode of life of the factory laborer. He passes the entire day in impure air, and subsists upon a diet of coffee, bad bread, beer or schnapps, potatoes, and bad meat. It is no wonder, then, that such a spoiled stomach can not endure a fresh Apple. Where the stomach has long been accustomed to a flesh diet, it may be necessary to introduce the fruit diet gradually, for otherwise the weakened organs are not in a condition to digest it properly. If fruit causes diarrhea, nausea, or other unfavorable symptoms, it is an evidence of a previously diseased condition of the system, the fruit being, not a cause of disease, but rather a means of bringing the disease out, and opening a way to a cure.

What has been said of the Apple is not equally applicable to Pears, which require greater care and a warmer climate for their perfect development. There are many coarse woody varieties of Pears, which are not to be commended, and which are usually eaten cooked; but this is objectionable, since the real value is not thereby increased. It is also more difficult to preserve Pears than Apples, and this gives to the latter a decided advantage.

STONE FRUITS AND BERRIES.

These are admirable articles of food. We have Plums, Prunes, Peaches, Apricots, Gooseberries, Currants, Strawberries, Blackberries, and Raspberries. These are of themselves sufficient to cure many diseases, and to restore the system to its normal condition. A person suffering with fever often feels an

intense desire for juicy fruits or berries, and with them cools the blood and calms the heated brain. The refreshing and life-giving juice of the fruit enters the blood, and passes as a messenger of health throughout the system. The severest cases of chronic disease may often be permanently cured by a fruit diet. Hemorrhoids, rheumatism, gout, scorbutus, scrofula, and consumption, all of which have their origin chiefly in a fatty and diseased condition of the blood, are greatly relieved by this method of treatment. The ancients understood this subject, and banished lepers to the forest, where they were obliged to remain, until by a continuous diet of berries the blood was purified, and the disease thus removed.

THE STRAWBERRY.—Oh, thou modest yet beautiful Strawberry! Like the violet, thou bloomest in secret. In thee lies concealed a joyous life, which thou art enabled to impart to man, and which he so much needs; but proudly and indifferently he passes thee by in thy humble retreat, seeking strength and health rather in the carcass of an ox—such is often the folly of man.

THE GRAPE.—If the Apple is the king of fruits, the Grape, the aristocrat of the garden, may well be called the queen. It flourishes only upon a good soil and in a warm or temperate climate, and is therefore attractive on account of its rarity, as well as its beauty and excellence. Its beneficial influence upon health is well known, and hence the so-called "Grape cure;" but not only in sickness, but at all times, it is a most excellent food. The majority of people, we regret to say, prefer not to "take their wine in the form of pills." Father Noah is described as the first one who employed the Grape, after it had passed into decay, as a means of intoxication. This is, indeed, a great

perversion of its use, and an evidence of the frail condition of human society.

THE HUCKLEBERRY.—Of berries there now remains especially worthy of commendation only the Huckleberry. No more delightful breakfast can be imagined to the truly healthy and unperverted stomach than one of Huckleberries and bread. But very few, if any, of the varieties of this sort of fruit are brought to the San Francisco market, as it is only found in any quantity among the redwood regions, in Mendocino and Humboldt counties, and further north, which are at too great distances for safe and convenient carriage.

THE DROUGHT IN CALIFORNIA.

The drought this year has so terribly checked sales and values of lands that speculators have put afloat the theory of a compensating year of full rainfall for next season. But reference to weather records for twenty-five years past fails to confirm this theory or to sustain any theory. If there be anything in the philosopher's ideas that forests draw rain and their denudation checks pluvial precipitation, great changes in the weather records may be expected in the next twenty-five years. Whatever changes occur should show diminished rainfall, because we are stripping the Nevadas of their native trees at a fearful rate; probably ten thousand acres a year is an under-estimate.

While the subject is under discussion, with preponderance on the side of hope, science makes announcement of a startling discovery that dampens expectation. Professor Muir has been searching the records of nature among the great Sequoias, which give exact comparative testimony regarding the

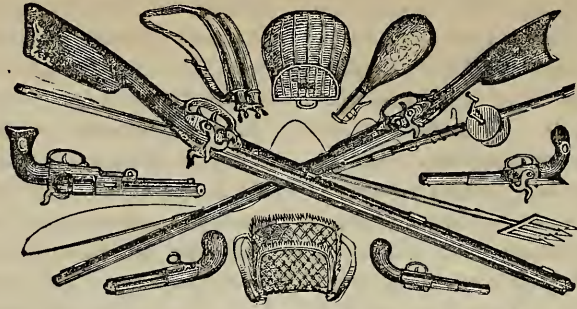
rainfall for the past 2,500 years. Many of these giant trees have diameters of thirty feet, and many lie prostrate.

Every surveyor and every court of landed jurisdiction receives, as positive proof of the age of the trees marking the corners, the number of rings that mark the annual growth. Every year distinctly marks with added circle the increased wood of that year. Mr. Muir, having cut off a section from the bark to the heart and polished it, was enabled to count every ring, and consequently to determine the age of the tree. By the aid of a good microscope it is easy to distinguish the years of maximum growth. If we assume that the larger growths indicate wet seasons, and the smaller rings dry ones, it is not difficult to learn enough for a pretty accurate register of the proportionate rainfall on this section of the globe from five hundred years before the Christian era to this date. Mr. Muir finds a distinct proof of this character that more than even two consecutive years of drought have occurred at times. In one case he counts nine very delicate rings cotangent—showing a period of drought of like consecutive duration.

This news falls like a bombshell among our land speculators. Their faith in science is less firm. "Nature is all right, but science may misinterpret." 'Tis thus and it always was with prophets. When a prophecy does not show fulfillment it was not truly interpreted.

Though Mr. Muir's interpretation is poopooed by speculators, farmers are not so assured as they were. Should these arborous rings prove as mischievous as our social and political rings it will be a sad day for California.—*S. F. Cor. Baltimore Sun.*

A friend is another self.



God and Gun.

HUNTING AND FISHING IN MENDOCINO COUNTY.

On the 29th of August, my nephew and myself started from our grand Pacific metropolis, at 7 A. M., on the good and fast steamer Donahue, up our beautiful and wide-spreading bay, bound for Donahue Landing, and ultimately for a point, previously agreed upon, on South Eel River, in Mendocino County. The passage was perfectly delightful, the early morning being the calm commencement of one of the many bright and lovely days which abound for more than half the year on our highly favored slope. A few white and fleecy clouds cast their soft shadows on the near hills and distant mountains, with just the far summit of Mount Tamalpais enveloped in a light, misty veil. Landing at the southern railroad terminus of Sonoma County, we mounted the cars, and pleasantly and swiftly glided through this rich and picturesque valley, past the neat and delightfully situated towns of Petaluma and Santa Rosa, to the still more handsomely located town of Cloverdale. At this point we took stage to Ukiah, winding and traveling mostly for many miles by a new road along the banks of the Russian River. The scenery here was most enchanting, the road being in some parts highly elevated from the bed of the

river, the eye continually catching bewitching glances of large and grotesquely-formed rocks by its sides, and sometimes in the very middle of the stream, with numberless bowlders of all shapes and sizes. The steep opposite banks were often mountainous and clothed with a noble and richly-colored vegetation of many varieties of trees and shrubs. At one point on the other side, and close to the river, we were much attracted by a huge, dark-colored mountain of rock, which must have loomed up into the air above us at least 400 feet. After passing beyond the interesting Russian River we traveled through the extensive and fertile Ukiah Valley, with many farms, grain fields, and orchards, but chiefly devoted to stock-raising.

We reached the city of Ukiah about 7 P. M. We found the landlord of the Stafford Hotel very kind, attentive, and accommodating. The new Court House near by, of red brick, was neat and handsome, and cost \$47,000. Next morning we hired a team to take us to our place of destination—Hildreth's Station—a small inn, situated about one hundred feet above South Eel River at the present low stage of its waters. We found the lodging accommodations somewhat rough at this rather primitive frame building, but the attention was kindly, and the table passably good. After dining and putting

our fishing tackle in order, both for fly and bait-fishing, we sallied forth for a short distance up the river to prospect for trout, having, however, previously learned from a Mr. Berry, an English gentleman, who owns a sheep ranch or range on the opposite side of the river, that at this season of the year the trout were small in size, and far from plentiful. This was far from being encouraging to us who had come so far to fish, although part of our intention was to stalk for deer, which at any rate were numerous in these parts. In going about a mile and a half up the river we came upon some deep water or holes surrounded by rocks, but only succeeded in taking ten small trout with an artificial gnat. We observed a great many large suckers swimming on the bottom (which would, as usual, not meddle with either a fly or bait, unless possibly the latter were a worm, and of these we had none), but this very inferior sort of fish rather unpleasantly reminded us that from our then present slim sport and consequent disappointment, we might unfortunately be ourselves classified among the sucker tribe of animals. Next morning I went alone down the river, the thermometer marking 93°, and the water therefore pretty warm, and producing evidently a lethargic effect upon the salmon family, for they could be induced to rise but little to the fly. Some bait-fishing was therefore considered—perhaps pardonably—to be in order, and under these circumstances I put on a small hook and baited it with some little pieces of fish. This plan was responded to by my capturing twenty-nine trout, about from six to eight inches long. The walking was very rough and fatiguing, to reach the pools and riffles, over shingles or pebbles of all sizes in the bed of the river. Some refreshing

breezes, however, blew up occasionally. Got home late, a little after sundown, rather tired and perspiring freely from fast walking.

About ten miles to the north of us rose San Hidrim, 1,500 feet high, ragged in aspect, covered with a dense and low vegetation chiefly—a famous locality for hunting the black, brown, and cinnamon bears. The shrubs are thick and difficult to penetrate. The bears are hunted on horseback, with a good dog or hound to make them tree, to kill them. Sometimes they tree at once, at other times they will run three or four miles before the dogs, especially if wounded. The cinnamon and brown bears are more savage than the black. A great business is done in these valleys and mountains in sheep-raising. Some owners possess as many as 20,000 or even 30,000 sheep—others from 500 to 10,000. Sheep-shearing was going on in many places during our visit.

After expecting them for some days, a party of deer hunters came up to the station, and we accompanied them to camp out about the distance of two miles on the river, in a wagon, with tents, guns, rods, etc. Next morning by sunrise they all went out to hunt for their favorite game. At 11 o'clock one of them brought in a young two-year-old buck. The others nothing but a few jack-rabbits. I started out for trout fishing, and caught by bait-fishing nine small fish. Spent the greater part of the remainder of the day lolling in the shelter of some oaks, as there was but little dense shade over the camp tent. I had slept the night before under the large tent, on willow branches, as there was no redwood foliage to be obtained conveniently. This hard bed, with hard bread, hard bacon, heat hard to bear, and hard swearing hard to hear, and no fruit of any

kind to be obtained in any shape in this hot weather, determined me to return to the little Hildreth inn at the station, where good canned fruit could be had in plenty. I enjoyed some nice baths in the river. My nephew was successful in taking with the fly at different times many small trout, with now and then one of half a pound. I took a number of about the same calibre, bait-fishing, and a few occasionally with the fly. At what an immeasurable distance in enjoyment is fly-fishing and bait-fishing from one another! One day I took a horse and rode about three miles over the high hills to fish in a small rocky and bushy creek, yeleft Garcy. Among a great many small trout, I caught several from a quarter to half a pound. The scenery around, with some very high isolated and peculiarly-formed rocks, from the tops of which grew several large trees, was very interesting, and indeed striking, with endless sheep ranges.

My nephew, on account of the excessive heat, lack of good spring water, and the deer resorting apparently to the tops of the mountains rather than to the river banks, came in from the camp, and the next morning we started on our journey homewards, stopping on our way for three days at a very pleasant and shady farmer's cottage, embowered in fruit and other trees, close to a small cold stream of water, well named "Cold Creek." This delicious streamlet was derived from copious flowing springs all along its short course to the headwaters of Russian River. We enjoyed much better trout fishing in it than in the tepid waters of South Eel River, taking from it many fair-sized fish, with several large ones. The quiet old man and his good-natured spouse—Mr. Albert and Mrs. Long—did everything to make us

feel at home and comfortable in their humble but neat, clean, and well-shaded retreat. And here we had such light and richly-flavored cold bread, such sweet and fresh home-made butter, as can not, according to our experience, be continuously equaled in our chief city, to which, also, were added good fruit and the best of vegetables. Of this very agreeable spot we most reluctantly took leave, by hiring a carriage from Ukiah, ten miles to that city, and from thence thirty-two miles to Cloverdale, through terrible dust, but with cool breezes, and the Russian River's splendid scenery well bearing repetition, we next day reached our great and long-accustomed city home.

HOW TO FISH FOR TROUT.

Always, if possible, fish down a stream. There are many reasons for this, among others the following: In fishing up stream the bait is continually coming home to one's feet after every cast, and the nearer it approaches a person the less chance of a bite. The contrary is the case in fishing down stream. The bait is carried by the current away from the fisherman, and his chances of capture are each moment increased.

If the brook is large enough—and even in very small ones—if practicable, it is always best to wade in the bed of the stream, as by this means one can keep the bait in the water for long distances without making a cast, which, in the localities I am speaking of, almost always ends in one's seeing one's tackle fast to some overhanging bough or bush overlapping the stream. Again, in fishing up stream, it is impossible to keep the bait stationary in any spot one may desire to cast in, unless by standing upon the bank, and the chances of

capture are thus greatly decreased; while in fishing down stream, one can not only hold the bait in any one spot, but by a motion of the arm conduct; in any given direction—sink it toward the bottom, draw it up stream, to the right or to the left—to tempt the hidden trout, the motion of the running water upon the bait giving one complete control of it by the slightest motion of the arm. To be successful in this sport, first give up all idea of using artificial flies; there is usually no chance to cast them, and very few fish will rise to them, and then only, usually, at early morn or sunset. Use a light, but very short jointed pole, not over twelve feet in length, with fine delicate running gear and small compact reel; small hook, gauged upon silk-worm gut, of any make that one prefers, there being great diversity of opinion on this matter among fishermen. The Limerick hook has nearly gone out of date, and how it was endured so long is a mystery. The Kirby and Aberdeen have taken its place.

Put no lead upon your line at any time; it kills the artistic and natural motion of your bait. Use, as the most killing bait yet discovered, angle-worms; and these may be much improved by being kept a few days upon clean moss in an uncovered, large-mouthed bottle, that they may scour themselves. In baiting do not pay the slightest attention to whether the point of your hook is covered or not; it is of small consequence, or rather it is more deadly and better not to be covered than otherwise. The trout does not nibble, he darts; he takes, as a rule, the bait at once, or leaves it severely alone. You will find no more taking bait the year round than angle-worms, although grasshoppers at certain seasons are very killing. In baiting, take

a worm by the middle and pierce the hook through a small portion, say half an inch; then put on another in the same way at the same time. If the fish are very small, half a worm treated in this manner will do; but a trout has a large mouth, and a large bait no doubt attracts. The dangling ends of the worms placed as above upon the hook have a peculiar and natural motion of their own in the water, which a hungry trout is utterly unable to resist; while one may, on the other hand, cover the whole hook and part of the gut with a worm stiffly strung on without motion, and the same trout will let it be carried past him by the current without winking.

There is a great science in baiting, and it chiefly rests in the skill of having the worms lively, and with the extremities left dangling. The bait is often carried over a little fall into a smooth, deep pool; allow it to sink, and all the while it is doing so these four ends of the two worms are moving about in the clear water in a much too enticing way for any chance trout to resist. When you have a bite do not pull at all, but strike your fish, as it is called; this is done by a motion of the wrist, sharp, short, abrupt; not a jerk—a motion which is commenced sharply, but ends almost instantly and abruptly. I can liken it only to a quick movement of the hand in bringing a foil, in fencing, from *tierce* to *carte*. It is done by bringing the finger-nails, which are downward, holding the rod, suddenly to the left and upward, moving the end of the pole upward and to the left some one or two feet. Having struck this you will in most cases have captured your fish. Be in no hurry to land him; that is a simpler thing to do; you can do it at your leisure, stepping back to a sure foundation should you be in an uncom-

fortable position in reaching to make the cast, or make any other disposition that you desire before raising your fish gently from the water, thence to your creel. The great mistake often made by those who do not understand this sport is to pull the moment they have a bite; the usual result is to see the trout wind himself about some tree overhead, or if he fail to be hooked, which is often the case in pulling, to see the bait and hook in the same position, causing a loss of time, patience, and too often temper, especially when you feel confident that there are other trout in the pool ahead, and become aware of the fact that you have got to make a splash and dash and complete exposure of yourself to get at your dangling line, so that you may fish in vain in the same pool afterward. Remember that trout are very shy, and once having disturbed them, it is useless to fish for them.—*Douglas Frazer in Harper's Magazine for August.*

FISHING IN CHINA.

The Chinese, among their many original ideas, have some curious ones on this subject, and doubtless fish now as they did a thousand years ago; and though on the coast they may have adopted the generally accepted system of working nets, on the waters of the interior of the country they adhere to the methods peculiar to their own nation—methods quaint and curious.

The lakes and rivers of China, and especially of the north, are so abundantly stocked with fish that in some places the men called fish catchers make their living by actually seizing and drawing them out with their hands. The man goes into the water, and proceeds, half walking, half swimming, raising his arms above his head, and

letting them drop, striking the surface with his hands. Meanwhile his feet are moving on the muddy bottom. Presently he stoops with a rapid dive and brings up a fish in his hand. The striking of the surface was intended to frighten the fish, which, when alarmed, sink to the bottom; then the naked feet feel them among the mud, and once felt, the practiced hand secures them in a moment. Catching fish in this manner is of course a trade in itself, and the plentiful supply it implies is somewhat explained by the fact that even the little ponds of northern China swarm with scaly life.

On the great Ningpo River the same principle is used on a more extended scale with boats and nets. The boats are ready for the river, and when they halt the nets are thrown out, and the oars and sculls beat the water with a loud splashing noise. After resting in the same place for ten minutes or a quarter of an hour, they move on again to another station, and there repeat the beating and splashing. The noise on the surface is meant for an alarm, as in the case of the fish-catcher; and it is said that this mode of fishing soon loads the nets.

Another curious method employed by the Chinese is generally practiced at night, and depends upon a peculiar power which a white screen stretched under the water seems to possess over the fishes, decoying them to it and making them leap. A man sitting at the stern of a long narrow boat, steers her with a paddle to the middle of a river and there stops. Along the right hand side of his boat a narrow sheet of white canvas is stretched; when he inclines to that side it dips under the surface, and if it be a moonlight night gleams through the water. Along the other side of the boat a net is fastened

so as to form a barrier two or three feet high. The boatman keeps perfectly still. If another boat passes by he will not speak; he is only impatient at the slight breaking of the silence. While he keeps thus without a sound or stir, the fish, attracted by the white canvas, approach and leap, and would go over the narrow boat and be free in their native waters on the other side but for the screen of netting, which stops them and throws them down before the man's feet.

Every one must have heard of the fishing cormorant, which is actually trained in China to catch fish. A man takes out ten or twelve of these web-footed birds in a boat, and, soon as the boat stops, at his word they plunge into the water and begin at once searching for and diving after fish. They are most diligent workers, for if one of them is seen swimming about idly, the Chinaman in the boat strikes the water near the bird with the end of a long bamboo, and not touched, but recalled to a sense of duty, the cormorant at once turns to business again. As soon as a fish is captured, a word from the man brings the bird swimming toward him. He draws it into the boat, and it drops its prey from its bill. There is always a string or straw tied around the neck, to prevent the fish from being swallowed, and this string requires the nicest adjustment, lest it may choke the bird, a result which would certainly follow if it slipped lower down on the neck. The sagacity, and workmanlike method of the birds are shown when they get into difficulty. If the fish caught is too large for one bird to secure, another cormorant comes up to the struggle, and the two, with united efforts, bring the prize to the boat. On the rivers and canals near Ningpo, Shanghai, and Foo-chew-

foo, the employment of these birds is not an uncommon sight; but they are never to be seen fishing in the summer months, their work being in the winter, beginning always about October and ending in May. The birds have, of course, to be subjected to a system of training, which is carried on in the cormorant breeding and fishing establishments, one of which is at a distance of thirty or forty miles from Shanghai.—*Chambers' Journal.*

Selected Articles.

PALMS IN SACRAMENTO.

A correspondent sends the *Record-Union* the following: "Now that the season for working in the Capitol park is near at hand, and there will probably be trees set out to decorate it, there should be some attention paid to a heretofore neglected tree, the Palm, which is the pride of the tropics, and gives a charm to the landscape that no other tree possesses. It is that which makes Southern Europe so attractive. The avenue of royal Palm trees in the Botanical Garden at Rio Janeiro is famous the world over. They grow so slow the first five or six years from their being planted, that no time should be lost, but the authorities should make a beginning this next season. The success that has rewarded those private citizens who have planted these trees in years past, leaves no doubt of their successful culture in this valley. Some varieties could be raised at a considerable elevation in the foot-hills. The *Chamærops excelsis*, a beautiful hardy fan Palm tree, growing to a height of from forty to sixty feet, a native of northern India, is very hardy, and will stand a temperature as low as 10° above zero. This is the most hardy

of all, and is very beautiful; but few of these have been planted in this city. The *Brahea fillimentosa*, the variety that is growing in Charles Crocker's garden, is very stately and handsome, is more tender in cold weather than the first-named Palm tree, but grows well here in the city. Many of the *Corypha Australis*, those in Governor Irwin's garden, an Australian Palm, are flourishing well in town. This is hardy, and very much resembles the first-named Palm, belonging to the Cabbage Palm family. The *Corypha umbraculifera*, the giant Palm of the Buddhists, who consider it sacred, is the largest of all, its fan-shaped leaves growing 12 feet wide and 18 long; it would do well here. The *Phœnix dactylifera*, the Date, the sacred tree of the sun worshipers, a fruit tree, bearing the Date of commerce, may be seen in the gardens of Henry Miller, Dr. F. W. Hatch, H. C. Kirk, General Redington, B. B. Redding, and others, is hardy and valuable, both for fruit and ornament. The *Chamærops palmetto*, in the garden of P. Bohl, the largest Palm tree in town, is very hardy—a Cabbage Palm, which attracts very much notice. There are fifty other varieties which could be planted and do well. The mistake of many who have planted them is in planting during the rainy season; it chills the young trees—they can not get heat to send out fresh roots. April and May is the best season. Their roots should not be disturbed. It were better to plant the seed where they are to grow and then let them alone; transplanting sets them back worse than it does any other tree."

THE HAWTHORN IN CALIFORNIA.

A considerable number of Hawthorn plants have been imported from Eng-

land during the last few years. These are mostly grown as separate shrubs, and are very beautiful in their way. They take kindly to the climate if they are well cared for, and especially if they get water enough. The Hawthorn comes to perfection in England where the climate is moist. It is chiefly used for hedges in that country. A correspondent of the New York *Tribune*, writing from London, gives the following account of this beautiful shrub:

Persons "to the manor born" were lately calling the season "backward," and they went so far as to grumble at the Hawthorn as being less brilliant than in former seasons. But, in fact, to the unfamiliar sense this bush of odorous coral has been delicious. You know it, doubtless, as one of the sweetest beauties of rural England. It deserves its reputation. We have nothing comparable with it in North America, unless, perhaps, it be the Elder of our wild woods; and even that, with all its fragrance, lacks equal charm of color. They use the Hawthorn or some kindred shrub for hedges in England, and hence their fields are seldom disfigured with fences. As you ride through the land you see miles and miles of meadow traversed by these green and blooming hedge-rows, and you find that they give the country a charm which is quite incommunicable in words. The green of the foliage—enriched by an uncommonly humid air and burnished by the sun—is just now in perfection, while the flowers are out in such abundance that the whole realm is one blaze of color. I saw the other day, near Oxford, on the crest of a hill, at least three thousand square yards of scarlet Poppies. You can easily imagine what a glorious dash of color that was in a green landscape lighted by the afternoon sun! Nobody could help lov-

ing a land that woos him with such beauty.

We have not seen a Hawthorn hedge in California, though there may be such. The plants grow readily from cuttings, and the blossoms appear to be as sweet as in England. It is a deciduous shrub, and would of course present a bare hedge for four or five months of the year. The Cypress is very popular here for a hedge plant because it is evergreen and very bright when it has been washed by the hose pipe or the rains of winter. The Osage Orange does well enough for farmers when the gophers let it alone; but it does not make a handsome hedge about the house. One of the handsomest of all hedges is that made by the Cherokee Rose. It is an evergreen, and its leaves have a very bright color with a waxy surface. The plants blossom when about four years old. The flowers are white, and there is only a single bloom in the spring. It grows readily from cuttings, and when not trimmed is a half climber or runner. Here is what the correspondent says about flowers in England:

English flowers, it must often have been noticed, are altogether exceptional for substance and pomp. The Roses in particular—though many of them it should be said, are of French breeds—surpass all competition. It may seem an extravagance to say so, but it is certainly true that these rich, firm, brilliant flowers affect you like creatures of flesh and blood. They are only in this respect to be described as like nothing in the world so much as the bright lips and blushing cheeks of the handsome English women who walk among them and vie with them in health and loveliness. It is easy thus to perceive the source of those elements of warmth and sumptuousness which are so conspicu-

ous in the results of English taste. This is a land of flowers: Even in the busiest parts of London people decorate houses with them, and set the sombre, fog-grimed fronts ablaze with scarlet and gold.

Some of the handsomest Roses ever seen in California have been imported direct from England. They do well here, although it requires a little time for them to become naturalized in this climate. Nothing could give a handsomer border to a garden than a Hawthorn hedge. It is possible that it may yet be as common here as the Cypress hedge is now. At any rate, the experiment of Hawthorn hedges ought to be thoroughly made. — *Bulletin*. [They need much water.—Ed.]

DO VARIETIES WEAR OUT?

Professor W. J. Beal, in an address before the Michigan Pomological Society, as reported in the *Michigan Farmer*, upon the subject as above, said:

Thomas Andrew Knight, the famous English horticulturist, believed they did wear out, and gave what he supposed were good examples, among which was the Golden Pippin Apple. He also believed that any variety of Apples or Pears would last no longer than the parent tree. Mr. William Masters also believed that varieties wore out. We know now that varieties may last longer than the parent plant. The Golden Pippin Apple is still grown in perfection, a long time after the death of Mr. Knight.

A plant may be injured by bad cultivation. It may become diseased and die. Cuttings, buds, or even seeds from such diseased or enfeebled plants may make diseased or feeble plants.

By some means, certain varieties of Potatoes which have been kept for six

or eight years in the College garden, have failed to set any tubers, many other sorts have produced only a few small tubers. A set of such Potatoes was sent to the Kansas Agricultural College and given good treatment for one year. Of those varieties which had dwindled down to very small specimens at Lansing, none revived or did better in Kansas. They all continued to degenerate. The cause of this degenerating I am unable to give, the fact can not be doubted. Some will attribute it to bad management, others to a weakening of the variety. Some varieties of Potatoes at our farm have yet shown little or no signs of degeneracy.

It is true in most places that seedling Verbenas are healthier and more vigorous than plants which come from cuttings. This may be due to the unfavorable conditions to which the cuttings are subjected, or to bad treatment of the stock plants in winter. Most of our best Verbenas have not been raised many years from cuttings. New ones are constantly taking their places. So with Potatoes, new varieties are mostly taking the place of the old.

There is no denying the fact that there are still some very old varieties of plants in a healthy condition. Some varieties of Grapes are said to have been propagated for 2,000 years.

Lindley, Speechley, Downing, and DeCandolle admitted the facts which Knight and others brought forth, but rejected the reasoning and the inferences drawn. As they believed, "It was disease, not degeneracy, and this disease propagated by grafting, which caused varieties or individual plants to disappear."

The late William Patterson of Scotland, in a premium essay in 1870, observed that varieties of Potatoes very rapidly degenerate and ultimately be-

come worthless, "attributed to repeated planting from the same stock, without an infusion of new blood."

President Wilder, in the transactions of the American Pomological Society, p. 19, 1869, writes: "However we may theorize in regard to this matter, it must be admitted, from the practical point of view, that some fruits have so declined as to render it absolutely necessary to replace them with new varieties." He cites Pears in our day as examples, St. Germain, Crassane, and White Doyenne, etc., once so excellent. Where are they now? For the great majority of locations they will continue to be worthless.

President Wilder also cites the Catawba and Isabella Grapes as other examples of fruit which is declining. Some varieties hold out better than others, as the Red Astrachan Apple, Bartlett Pear, and Wilson Strawberry, which seems to thrive almost everywhere. Others thrive in only limited localities.

Dr. A. Gray believes that "varieties, though not liable to change, may theoretically be expected to wear out, but to be a very long time about it; that sexually propagated varieties or races, although liable to disappear through change, need not be expected to wear out, and there is no proof that they do."

The longer a race is bred or reproduced from a succession of similar individuals, the more permanently fixed it becomes. The progeny are more certain to be like the parents. This is well shown in our thoroughbred cattle, sheep, horses, swine, and poultry. Probably if closely related parents are to be bred together it is better that they should have been kept for some time in countries remote from each other, subjected to different surroundings as to food, air, temperature, etc.

In the case of plants this has been proven true by recent experiments of Darwin. Instead of trying to infuse new vigor into a race by introducing or crossing with another race, bring together those of the same race which have been long raised in different localities. The result in most cases has been a wonderful increase in the size and hardiness of the plants, the size and yield of the seeds or fruit. This result has been worked out by Darwin, and has been proved by many experiments tried on a great variety of plants. The idea is a very valuable one to the raiser of fruits, flowers, grains, or vegetables.—*Prairie Farmer*.

BANANA CULTURE.

Each year adds something new to our knowledge of the capabilities or susceptibilities of our soil or climate. But a few years ago it was supposed that the cultivation of the Orange, Lemon, and Lime was only possible in this State in certain favored localities in the Southern counties. Accident and experience have proven that such localities are to be found in nearly every county from one end of the State to the other, and that these fruits may become with us almost as universal and plenty as the Apple, Pear, or Peach. The Banana has been looked upon as only possible of successful cultivation in full tropical climates, and but few have been bold enough to question the general opinion, or to attempt its cultivation in California. Yet a few have tried it, and their experiments have been attended with very gratifying success. At a late meeting of the Southern Horticultural Society at Los Angeles, Rev. H. H. Messenger read a very interesting paper on the culture of the Banana, from which we gather the following conclusions :

First—That Bananas can be successfully and profitably cultivated in Los Angeles, and probably in many other localities in this State.

Second—That the Sandwich Island or Panama Banana requires a longer season of warm weather than can be had in any locality in this State, unless started under cover and protected from the cold weather in the fall and early winter. The Florida Banana, however, grows to full size, and ripens entirely in the open air in Los Angeles County, and will probably do so in many other counties in this State.

The gentleman gave the mode of cultivation and what he thought might be reasonably expected from it, as follows:

Plant the bulb eight or ten inches deep, eight feet apart. This will give 681 plants to the acre. Irrigate and cultivate well. In one year from planting the sucker or bulb first planted will be, likely, six feet high, with three or four suckers from the root. A new plant makes its appearance from the root every two or three months. During warm weather sooner; during the coldest weather taking a longer time; that is, perhaps none may appear during the three coldest months. But, by the end of two years from planting, fruit may be gathered from the parent stock, and five or six suckers coming on the same hill, two or three of which should be removed. About three growing at a time is considered best. From this time on one bunch of fruit may be confidently expected each year.

The clusters of fruit will be according to the irrigation and cultivation. With the best of care from 50 to 100 can be taken from a plant; with less care, perhaps from 12 to 30. My firm belief is, that with irrigating once a month for eight months in the year, by

the end of the second year and every year thereafter, a bunch worth \$1 can be taken from each plant or hill of the land planted, or \$681 to the acre, and in some localities twice this.

Bulbs are expensive now, as the freight from Florida is so great. Mine cost me \$1.36 each. Many had dried out or rotted on the long journey, so there was only a black mass, with perhaps a crack, where the white germ could be seen inside. The whole bulb is about the size of a good-sized onion. Fresh and vigorous bulbs obtained here will come on lively. I planted one on the 22d of May, leaving the tip at the ground, which is now thirty inches high. I am going to test this one by the best of care, to see if I can get 120 Bananas in one bunch from it. Such a bunch would now sell for \$4. It is plain to be seen that where the frost is not severe enough to injure the fruit, Banana-raising will be very profitable. But here is where the doubt will come into the minds of people living in different localities. To all living where but little ice is formed, I can say there is little fear, as the Florida Banana will stand quite heavy frosts and still fruit. I think I could pick out 100,000 acres in Los Angeles County quite well adapted to the growth of this variety, and nearly every one has some sheltered places on the south and west side of buildings, where they could raise a few plants to great advantage. And even if they had to wrap them up with old cloths or blankets for the coldest season, they could thus save them, as they draw up a great quantity of warm moisture from the ground, which, circulated within, would keep them, when wrapped, from freezing. The outer leaves may be all cut off by the frost; but with the warm sun, such as we have in this country, soon after they send out

new leaves and keep on growing. They have no seed, and are propagated only from suckers.

PEANUTS AND PEANUT OIL.

There is hardly an article of American produce, of apparently so little importance, that has grown so rapidly in production and consumption as the peanut. Twenty-five years ago the only variety known was the African, a small insignificant nut. These were the first sown in this country, in North Carolina, and in 1860 the production had so increased that 150,000 bushels were raised in the United States, five-sixths of which were grown in the above mentioned State. During the war the production ceased, except in North Carolina, the crop there being used for making peanut oil, and this was the only table oil the Southern people could then obtain. As a substitute, during the war, African peanuts were used, and large importations made, but with the increase of native nuts since then, the importation of African has about ceased.

The peanut is an earth nut, growing at the roots of a vine like potatoes, and pulled and dug in the same way. Peanuts are sown both with shells on and without shells, the best selections being kept from the previous crop. As often as every two years the seed has to be changed—seed from some other locality being substituted—as peanuts, like rice, if resowed too often, grow all pods and no meat. Different soils also have an effect on the style and appearance of a nut—hard clay soil growing a nut with a smooth shell, and a sandy loam a large nut with a shell full of deep indentations and creases. Peanuts also vary with the soil in which they grow. A Tennessee nut sown in Virginia will not produce a Tennessee or Virginia

nut, but a sort of mongrel; the same with a Virginia nut sown in North Carolina.

There are six varieties of peanuts known in the market, viz: the African, Spanish, Virginia, Tennessee (the latter two varieties red and white), and Wilingtons or North Carolinas.

The African nut is the smallest grown, and is now mostly used by confectioners. When imported uncleaned they are sold at thirty-two pounds to the bushel; when cleaned, at twenty-two pounds. Hence, Africans are quoted and sold as uncleaned, cleaned and shelled—some being shelled in that country and sold here to confectioners. A large quantity go to France, where they are used in the manufacture of oil. A cargo of uncleaned African nuts is an unsightly object, being about one-eighth broken shells, stems, roots, etc., and if in warm weather, covered with myriads of minute bugs, which breed in the dust. The low price of Wilingtons, which Africans resemble, and are sometimes sold as, is tending to decrease the importation of the latter. This year only 61,000 bushels have been imported, and none are expected next year. The crop ripens in the fall, but does not reach here until April and May; the bulk of it goes to France.

The peanut largest in size and production is the Virginia, which has come into existence within ten years, the crop increasing each year, until 450,000 bushels were raised last year. It has the thickest shell and is sold twenty-two pounds to the bushel. When Virginias first made their appearance they sold slowly—their large size not being liked, from the fact that only the small Africans and Wilingtons had hitherto been known. Of shelled nuts, a bushel of Virginias will yield seven to ten pounds, according to size and quality.

The next variety in size of nut, amount of crop and in the estimation of the trade, is the Tennessee, of which there are two varieties, the red and white—the first so-called because of the deep maroon color of the skin covering the kernel, and the latter because the skin is of a very light shade, or nearly white. The white variety is considered the best of the two, but lately the proportion of those grown has been decreasing, last year being unusually small. Tennessee nuts have never gained the reputation of Virginias in this market, having hitherto received but little care in handling and preparation for market. Last year, however, a great improvement in this respect was made, resulting in a better average quality, for which better prices were obtained, notwithstanding the large crop. Cincinnati is the headquarters for Tennessee nuts, taking last year nearly the whole crop, or 200,000 bushels out of 235,000, and from that point they are distributed all over the West, very few coming here. Tennessees are sold here at twenty-two pounds to the bushel, but in Cincinnati these, as all other descriptions of nuts, are sold by the pound instead of by the bushel.

Next comes the Wilington or North Carolina peanut, grown from African, and resembling the latter so closely that cleaned Africans are often sold for Wilingtons, the price of the latter generally being higher than Africans, while the two kinds look exactly alike. The pure Wilington seed soon runs out, even if a farmer selects the very best seed from his previous crop; hence new seed has to be imported every year. The Wilington being a full-meated, thin-shelled nut, weighs high, being sold at twenty-eight pounds to the bushel; it yields a larger proportion of oil than any variety, except the African.

THE OLD GARDEN.

Beyond the quiet homestead's lawn,
In drowsy peace it lies ;
Well from the passing gaze withdrawn,
Its matted hedges rise.

Through solemn firs that veil the light
To reach its gate we press,
Ere softly breaks upon our sight
Its halcyon loveliness.

Deep-rimmed with box, the paths we take
Through realms of plenty range,
When summer's mellowing fervors wake
Perpetual charms of change ;
And tender sounds, not told in words,
Forever haunt the breeze,
A sense of epicurean birds
And bachanalian bees!

For bloom and fruit, in blended way,
Here brightly gleam by turns ;
Beside the currant's crimson spray
The tiger-lily burns ;
Or roses raise their balmy lips
Near purple plums ; or yet
The gooseberry's rounded amber slips
Among the mignonette !

We see the ancient arbor loom,
That bounteous vines enwrap,
And hear, within its fragrant gloom,
Pale-glancing foliage flap ;
Or when the wind of autumn grieves
Round pomps her power shall strew,
We watch the grapes from tarnished leaves
Hang dusty and dark-blue !

Shrewd wasps, in yonder jungle, haunt
The blackberry's beaded gloss ;
High stalks of maize in vigor flaunt
Green flags and silken floss ;
And here broad apple-boughs once more
Hesperian wealth unfold,
Whose dragon is the worm at core
That revels on their gold!

Now emerald melons wax immense,
Or now with grandeur glows
The pumpkin's yellow corpulence
In smooth rotund repose ;
Here, too, all homelier life occurs
That household aims can please,
From curves of pimpled cucumbers
To bowers of tangled peas!

So, thronged by growths of many a grade,
The calm old garden lies,
Half mantled with monastic shade,

Half bared to altering skies,
While sleepy spells are round it cast,
That gently brood and muse—
Dead songs and sunbeams of the past,
And immemorial dew!

AMERICAN FRUIT IN EUROPE.—The *Pall Mall Gazette* remarks that the foreign demand for American fruit is now so great that Europe and Anstralia will take nearly all the fruit, fresh and dried, (dried peaches excepted,) which the United States can land in their markets in good condition. England prefers fresh fruit, and since last October has taken 396,000 barrels of apples from the United States, beginning with the latter part of October, at the rate of 8,000 barrels a week, increasing in four weeks to 17,000 barrels. The average in December was 20,000 barrels weekly, and one week the number ran up to 28,525. These were mostly Baldwins, Greenings, Russets and Newtown Pippins. It is estimated that England will take an average of from 12,000 to 15,000 barrels a week for the entire season of nine months. The working-classes of Germany and the workingmen and miners of Australia are the chief consumers for American dried fruit abroad, but the poor people of England and Russia buy to a limited extent. As long as dried apples can be exported from New York at five or even at seven cents a pound, the workingmen of Europe and Australia will buy all that can be spared. The business of exporting fruit is one that has been chiefly built up since 1865. In the eleven months ended July 1 the fruit exported amount-in value to \$2,831,000.

THE Malva family are coming into favor as herbaceous plants of great service in what is termed the "wild garden," where vegetation is allowed to run somewhat rank.

Editorial Portfolio.

OUR FRONTISPIECE.

AMERICAN COWSLIP, OR SHOOTING STAR (*Dodecatheon Meadia*).

No wild flower of Great Britain, Switzerland, and other parts of Europe is more justly celebrated on its native soil for its beauty and its early appearance in spring than the world-renowned Primrose. The botanical name, *Primula*, from the Latin *primus*, refers to its being first to flower. One of its many species, *P. Veris*, or Spring Primrose, is the noted English Cowslip.

The odd and saucy-looking flower, the engraving of which has been kindly furnished us by the *Rural Press*, whose engraver has accurately represented it in its natural size, is the most beautiful member of the Primrose family among the native flowers of California and other parts of the United States. Hence its common name, American Cowslip.

Gray tells us that it is found in rich woods, from Pennsylvania and Maryland to Wisconsin and southward. He adds that it is called in the West Shooting Star, alluding, no doubt, to the manner in which its flower-leaves are turned back. This gives each blossom somewhat the appearance of the bright head of a meteor, followed by a train of light.

The reason for this common name is much more apparent than for the systematic one, *Dodecatheon*, from two Greek words, meaning the twelve gods, in allusion to the twelve chief divinities of the Romans. To pronounce correctly it is accented on the third syllable. This name was given fancifully by the eminent Linnæus himself, and we are at a loss for its application,

unless it be that he wishes thus to stamp it pre-eminently as a crowning glory among our wild flowers. The specific name, *Meadia*, was given in honor of a Dr. Mead, of Virginia, by Catesby, a pioneer of American Botany, through whom it was first introduced into England from Virginia, as early as 1744.

Loudon, in his "Encyclopedia of Plants," describes no less than five different varieties of this handsome plant, with white, rose-colored, and lilac flowers. Gray describes but one species belonging to the older States, its flowers rose-color or white.

At least three varieties are common to California, the white and the cream-colored belonging to the hard, knolly lands of our plains, the rose-colored found only in the mountains.

In the white, which is the most common variety, each flower-leaf, varying in number from five to eight, is a pure white with a straw-colored spot at the base. This is followed by a ring of a deep velvet-like purple, then a second and smaller ring of a bluish purple. At the base of each of these rings are small yellow spots. In the centre of the flower, the stamens and pistil unite in a spike of a bluish-black hue.

The variety and delicacy of coloring make the entire appearance of the flower one of exquisite beauty. Its odor is strong and spicy, like cinnamon, and very similar to that of the most fragrant pinks. Its roots are fibrous, its leaves oval, small and radical, resting flat upon the ground. From the centre of these arises a single flower stalk, usually from six to nine inches high, without a leaf, and surmounted by a cluster of drooping flowers, varying from four to ten in number. The work of the engraver, as in all object-teaching, gives a more accurate idea of the plant than

any attempt at description can possibly do.

ITALIAN GARDENS.

At the request of a valued advertiser and subscriber of the *HORTICULTURIST*, we make a few remarks upon the characteristics of an ancient Roman and modern Italian garden (the modern Italian garden is derived from the old Roman). These features were and are still, clipped hedges, square parterres, straight walks, trees and shrubs (especially evergreen), uniformly lopped, regular knots and carpets of flowers, groves nodding at groves, balconies, marble fountains, caves and grottoes, plants and flowers in pots and vases, terraces, statues, and urns, with the finest turf or vividly verdant grass, all in geometric forms, and often connected with a menagerie and aviary; the last among thickets, arbors, and vines. This architectural and regularly shaped taste is formal and geometric, similar to the general gardens of Holland. Antiquities may be very appropriately introduced in this description of garden, with sometimes curious hydraulic devices or water works and marble fountains. One of the quaintest objects in some Italian gardens is a hydraulic conceit of a copper ball, supported by a jet of air issuing from the floor, and continually dancing about, similar to the balls lately seen at the Mechanics' Fair, and kept moving about at the top of a jet of water.

The Italian style of gardening and architecture can be adapted in any kind of ground, level or hilly, or even precipitous, by forming terraces with the suitable Italian formalities, ornaments, and decorations.

At Ukraina, Eden Township, Cal., a patch of land 40 by 60 feet produced 600 fine-sized Nutmeg Melons.

PREMIUMS OF THE FAIR.

We are much pleased to observe that the excellent managers of the Mechanics' Institute have, this year, very judiciously and liberally awarded money premiums and medals to the exhibitors of fruits, flowers, vegetables, and other horticultural articles and ornaments. This wise and well-timed proceeding will have the desirable effect next season of inducing many other florists, horticulturists, and manufacturers of garden decorations to come forward and exhibit their productions in greater numbers than they have done hitherto. These floral exhibitions are attended with considerable trouble and expense, and sometimes loss, and always injury in some degree to the plants, etc.

The following is a list of the premiums and medals awarded: R. B. Woodward, best display of hardy evergreens and plants, \$25; best display of ferns and lycopods, \$10; best display of tropical plants, \$25; best single palm tree, \$10; the most attractive and continuous display during the Exhibition, medal and \$100. Miller, Sievers & Co., best display of cacti, \$5; best display of begonias, \$5; best display of roses in bloom, \$5; best display of fuchsias, \$5; best display of variegated geraniums, \$5; best single piece of floral work, \$10; best basket of cut flowers, \$5; best wreath of cut flowers, \$5; best pair of bouquets (15 inches high, not less), \$5; best pair of hand bouquets, \$5; best bouquet for a bride, \$5; second best attractive and continuous display during the Exhibition, medal and \$75. Thos. Saywell, best display of climbers and trellises, \$15. T. Duffy, best hanging basket, \$5; best collection of rustic work, medal and \$25. Thomas Saywell, best display of cut flowers, \$10; best display of cut

roses, \$10. California Wire Works, best display of wire ornamental goods, medal. E. L. Hall, Oakland, special display of rustic work, medal. The *Journal of Commerce*, for California products, and Mr. Murray, the editor, for tropical fruits, were also awarded handsome premiums in money and gold medals. Also the table containing the products of Oregon was suitably rewarded by liberal money premiums and gold medal.

PUBLICATIONS RECEIVED.

"The Poultry World."—Poultry fanciers and farmers who raise fowls for market will find this magazine very useful, as it is devoted exclusively to the discussion of matters pertaining to the breeding and rearing of poultry and such other matters as are connected with the pursuit. Its appearance is very attractive, as it is adorned with many fine cuts, and, in addition, the publisher furnishes to his subscribers at a nominal price, twelve magnificent chromo-plates of modern varieties of fowls. Subscription, \$1.25 per year, or \$2 with the chromo-plates. Address H. H. Stoddard, Publisher, Hartford, Conn.

"Descriptive Catalogue of Tulips, Hyacinths, Crocuses, Lilies, and other Spring Flowering Bulbs," with supplementary addenda of Winter-blooming Plants, Fuchsias, Geraniums, Roses, Chrysanthemums, etc. For sale by F. K. Phoenix, at the Bloomington Nursery, McLean County, Illinois. Also "Wholesale Price List."

St. Francis Nurseries.—"Illustrated Wholesale Price List of Nursery-grown European Larch, Evergreens, Fruit, Ornamental, Shade, and Deciduous Tree Seedlings," cultivated and for sale by H. M. Thompson & Son, St.

Francis, Milwaukee Co., Wisconsin. For the fall of 1877 and spring of 1878.

"Catalogue of Novelties and Wholesale Trade List of Stock Plants for Winter Blooming and Propagation," for the autumn of 1877. Offered by William K. Harris, Proprietor of the Kingsessing Nurseries, No. 5,501 Darby Road, Philadelphia.

Waukegan Nursery.—"Wholesale Catalogue of Evergreen and Ornamental Tree Seedlings, etc., cultivated and for sale by Robert Douglas & Sons, Waukegan, Lake Co., Ill. For the fall of 1877 and spring of 1878.

"Circular and Price List" for the summer and fall of 1877. Strawberry, Raspberry, Gooseberry, Currant, Blackberry Plants, etc., for sale by E. P. Roe, author of "A Manual on the Culture of Small Fruits, How to Raise and Market Them." Address Cornwall-on-the-Hudson, Orange Co., N. Y.

"Southern California Horticulturist," published monthly by the Southern Horticulturist Society, at Los Angeles, Cal., L. M. Holt, Editor. Devoted to the interests of Horticulture, and such other questions as directly interest Southern California. Thanks for a complimentary ticket to attend the Fair.

"Vick's Illustrated Magazine" is the title of a new monthly announced by Mr. James Vick, the Flower King of America. We mean by "Flower King," that Mr. Vick, while he is the most ardent lover of flowers, is also the most devoted cultivator of the floral kingdom, not only cherishing but distributing everywhere in this broad land, their choicest blessings. His Catalogues and Quarterly Reviews have been gems of beauty, as well as manuals of utility, to all who cultivate flowers. Hence we are assured that his forthcoming maga-

zine will be resplendent with beautiful engravings, while it is interesting and instructive as a household journal. It will contain thirty-two pages, and a colored plate, in addition to other illustrations. Price, 25 cents, or five copies for \$1. Address—Rochester, N. Y.

MASS. HORTICULTURAL SOCIETY.

When a Boston man has put enough money in his purse to afford to buy a country residence he straightway joins the Horticultural Society and bends all his energies to winning prizes and gratuities by raising flowers of wonderful colors and fruits of enormous size. As all the lucky men who are born with the title deeds of country houses in their hands also belong to the society, it has come, during the 48 years of its life, to be a very flourishing association, and wields a vast influence in horticultural matters in Massachusetts. It owns a handsome building on Tremont Street, near the Common. It has the best library of its kind in the country, containing hundreds of books of which there are no duplicates in the United States. It annually awards \$6,000 in prizes for fruits, flowers, vegetables, and essays on topics connected with raising them, and with country living. Its discussions attract not only gentlemen farmers, florists, and nurserymen, but also learned professors and chemists who are interested in its work. Among its honorary and corresponding members it counts names well known in America and Europe, and it has nearly 600 life members and 493 annual members. It holds a great many free exhibitions in the course of the year, and annually it gives one great display which is really the prettiest sight in the city from year's end to year's end. The Society's building

contains two handsome halls, and in these long tables are placed, covered with white cloths, reaching to the floor; on these stand plates and dishes of fruit and vases and pyramids of flowers. This year the platform of the lower hall is occupied by a huge Banana plant, which lifts its great green leaves almost to the ceiling. Near it is an *Arthurium crystallinum*, the only plant of its kind in the country; it has very large, velvety, palmate leaves of the darkest shade of green, veined with the palest tint of the same color; a new variety of *Hydrangea*, with variegated foliage; *Dracænas*, a *Cyanophylla magnifica*, and several other enormous specimens of the eccentricities in which nature indulges when she forsakes her rule of plain green leaves, are grouped in this part of the hall, and hundreds of others make a wall of verdure down the centre of the room. Banks of *Gладиoli* of all shades, terraces of cut *Dahlias* and *Asters* and other garden flowers, arranged with exquisite taste, and miles of *Smilax*, festooned in reckless profusion, occupy the wall space, and distract the attention of fair visitors from the vegetables, although these include many rare kinds, as well as those that enter into the composition of the New England boiled dish. The Potatoes are rather larger than usual, in spite of the attacks of the Colorado beetle, but the display of Apples in the upper hall is small, although, for a wonder, nobody prophesied the failure of that crop this year. The Grapes and Peaches look well, and the Pears are of fair size. In this hall the bouquets are placed. The prizes for arranging them have been awarded to ladies who, when they choose, can surpass male florists in this pretty art. Ferns, fungi, lycopods, marsh and pond plants, vegetable curiosities of all kinds are seen

here, and show how wide is the field that the Society has made its own. In some mysterious fashion all the plants and flowers are made to keep their freshness for three days, though nobody seems to pay any attention to them, much less to water or sprinkle them; and during these three days everybody that is anybody goes to Horticultural Hall.

ADDRESS OF HON. M. P. WILDER.

President M. P. Wilder's address delivered at the Sixteenth Session of the American Pomological Society, held in Baltimore, Maryland, September 12th, 13th, and 14th, 1877, has been kindly forwarded to us by him. This document by the venerable speaker, highly eminent fruit culturist, and most worthy gentleman, is very valuable and greatly interesting to all lovers of pomology in all parts of the world. The address treats on and presents a history of the "growth, expansion, and influence of the American Pomological Society and kindred associations; the extension of fruit culture, and the immense crops of our country; tropical fruits; the introduction and dissemination of new and valuable American fruits; improvement in packing and transportation; the perfection attained in the canning and drying of fruits; revenue from fruit culture; crop fertilization; nomenclature; pomological literature; and necrology, or an account of the deaths of eminent pomologists since the last session, and winding up with a most earnest and affecting appeal to surviving horticulturists and cultivators of fruit to use every effort to advance our cause by diligent experiment and observation so that as we come up from session to session, we may add something to the common stock of information, and thus develop

for the good of mankind the rich treasures which our science has in store for the world; and let the success of the past stimulate us to greater exertions for the future."

Among the numerous publications of Horticultural societies it is proper to mention here that the proceedings of the American Pomological Society with the much honored President, M. P. Wilder at its head, have, for the last twenty-nine years, embraced, in consolidated form, the reports of the various States and districts, the discussions, the catalogue of fruits adapted to each section of our country, and other information, such as is nowhere else to be found in the history of pomological literature. Through these publications the reputation of the American fruits has attracted the attention of foreigners, so that European catalogues now possess many names of American varieties.

FRUIT CULTIVATION AND REPORT OF
FRUIT AND VEGETABLE MARKET.

If practicable the trees for the orchard should be selected at the nursery in preference to buying them at the yards in the towns or cities. It would be better also to select them in the rows of the nursery before they are dug. By going direct to the nursery and selecting the trees in the ground you gain two important advantages. First, you can secure the best trees, and second, you can take them home and set them in the already prepared holes without exposing their roots to the light and air to do them any injury. Trees thus carefully selected and set will be worth double what those ordinarily bought at the yards and set even with the same care. Good nurserymen are, of course, generally very careful about exposing the roots of trees after

they are dug and while they are waiting sale, but the greatest care can not prevent more or less exposure and injury. By the time they reach the yard in town all trees are on an average heeled in and milled up from three to four times, and each time more or less of the rootlets are broken off, and the main roots more or less bruised. Then if they remain in the ground long they are pulled up or reset in the ground from three to four times at least, and sometimes as often as this in a single day. If you select in the row you can see that they are dug and handled carefully, and not injured in any way. If selected after they are dug, be careful to examine the roots well to see that they have not been bruised or broken in digging and handling. A bruised root will not show to the eye after it is in the ground, but it may retard the growth of the tree for years, while a bruised or broken limb may be cut off and its place supplied by growth in a short time. The short and heavy-bodied tree is preferable to that of a long and small-bodied one. The tree that has branching and spreading roots, better than those that have a few large roots. As to the age of trees to be selected, we would always prefer to buy and transplant trees, one year old from the bud than those older. An orchard of trees two or three feet high when set out will not look as well and promising for an early supply of fruit as one set with trees four and six feet high, but in a few years it will look better and give better returns. The tap root has generally been cut off of nursery trees when they are budded or grafted, but in this country we think the practice a poor one. In our dry climate nature should be followed as nearly as possible, and here, in all our forest trees and fruit trees that grow when

the seed is planted, the tap root is the main root of the tree. Having selected our trees and conveyed them home, we should not for a moment delay setting them in the orchard.

The tree should, when the soil is well settled about it, be just about as deep in the ground as before digging. It should therefore be set a little deeper at first, as the newly-removed soil will settle some. Let the hole, which has been dug much deeper than was necessary to receive the roots of the tree to occupy it, now be filled up with surface soil and packed so that it will not settle much more, to a point so that the roots of the tree when in proper position will just reach down to it. Holding the tree in the left hand with the right separate the roots so that they will occupy about the same relative position toward each other that they did in the nursery, and haul about them well pulverized surface soil, packing the same closely around each root and rootlet with the hand. Continue this process till all the roots are embedded in the soil as carefully and securely as before they were disturbed in the nursery.

We would now turn our attention to pruning or cutting back the top. In this we would remark that the most important idea is that the tree should be so cut back as to produce branches low down to the ground. This is important, that they may shade the body of the tree and protect it from the scalding rays of the sun. Low-branching trees are better, too, on account of gathering the fruit. We would, by all means, train all kinds of fruit trees near the ground. The trees being set, the next thing to be done is to cover the ground about each tree, say from four to six feet in diameter, with some mulching material that will absorb rather than reflect the heat. Barnyard

manure, half rotted and mixed with short straw, is good. While this material will protect the body of the tree from the hot-reflected rays of the sun, it will gradually decay and furnish its roots with manure as they can appropriate it. Now that the orchard is set out, and pruned, and mulched, do not neglect to cultivate it as regularly and carefully for the first few years as you would cultivate a field of favorite corn, and within that time it will begin to pay you for all your trouble and expense. It will become an ornament to your farm, and a source of health and enjoyment to yourself and family.

What a pest the burrowing squirrel is, farmers in many parts of California know by experience. To one who has not seen with his own eyes the destructive work of the squirrel, or unearthed his *caches*, a statement of the result of his predatory habits would be positively incredible. It is persevering and wondrously industrious. R. G. Sneath, formerly connected with business in Oregon, states that the following method of destroying the animal has been found very effective in California: Moisten wheat with gum arabic, with just sufficient gum to make the strychnine adhere, and then coat with a sprinkling of fine, white sugar, which, with the addition of a few drops of oil of rhodium to the pailfull, gives them a palatable dish. This preparation can be kept any length of time, while soaking wheat soft, in order to take up the poison, renders it liable to germinate or rust. I give the grain a good coating, and only put out a small quantity, say ten grains, at a hole, and keep replacing it as the grain is taken away, after which I close the hole, and only re-poison when the hole is re-opened.

A little microscopic insect (*Aphis*) is attacking the foliage of many deciduous

trees, and vines, and orchards, and in some instances spreading over hundreds of trees like a blight in a few days. The first evidence of its presence is the drooping and browning of a few leaves on a tree, and if let alone in a few days the leaves will curl up and begin to fall. In a few days more bright new leaves will be seen forming on the tips of the branches, and in a short time the tree will be covered with an entire new dress. The insect seems not to attack the tree itself, nor the fruit, but confines its ravages to the leaves, and remains long enough to strip the tree but once. A shower of rain destroys them, as does also water thrown upon the tree with a hose or otherwise.

The *Commercial Herald*, our best authority in this city, informs us that about the beginning of last month (September) the market continued to be well supplied with Apples, Clingstone Peaches from the mountains, a few Pears, also Berries, Grapes, Figs, etc. Lemons and Limes were scarce and high. The consumption during the hot spell was great, as also of Watermelons and Cantaleups. Strawberries were still coming forward. Apples, Pears, and Quinces showed no diminution in quantity as yet. Sweet Apples and other inferior stock greatly depressed the market, receipts being very large. Peaches of rather better quality came from the mountains, were extra large in size, and of very high color, and brought fancy prices. Pears were dull, Bartletts and Seckels were the only varieties there were any inquiry for. Common varieties in large supply and prices ruled low. Receipts of Grapes were increasing rapidly. Muscat and Flaming Tokay had the preference — only a moderate inquiry for Rose of Peru, Black Hamburg, Black Malvoisie, and Chasselas within

the range of our quotations. Peaches found an appreciative market. We are indebted to Howe & Hall for the following quotations: Apples—Choice, \$1 to \$1.25 per box; common, 40c. to 60c. per box. Pears—Bartlett, \$1 to \$2 per box; Seckel, 60c. to \$1 per box; cooking, 30c. to 50c. per box. Plums, 4c. to 8c. per lb. Quinces, 75c. per box. Peaches—Mountain, 4c. to 8c. per lb; choice, \$1 to \$1.25 per basket; common, 50c. to 75c. per basket. Strawberries, \$3 to \$5 per chest. Raspberries, 20c. per basket. Blackberries, \$6.50 to \$8 per chest. Figs, white, 50c. to 75c. per box. Oranges—Tahiti, \$25 to \$30 per M. Lemons—Sicily, \$10 to \$12 50 per box. Limes, \$15 to \$17 50 per M. Bananas out of market. Pine Apples, \$6 to \$8 per dozen. Coconuts, \$6 to \$7 per 100. Watermelons, \$4 to \$8 per 100. Cantaleups, 50c. to \$1.50 per dozen. Grapes—Muscat, 50c. to 75c. per box; Tokay, \$1 to \$1.25 per box; Black Hamburg and Rose of Peru, 30c. to 50c. per box; Sweetwater, 25c. to 30c. per box. B. Malvoise and Lombard, 40c. to 50c. per box; native, 30c. to 40c. per box. Dried Fruit—Apples, 4c. to 6c. per lb.; Peaches, 7c. to 9c. per lb.; Pears, 6c. to 8c. per lb.; Plums, 3c. to 4c. per lb.; pitted, 12c. to 14c.; Prunes, 12c. to 15c. per lb.; Apricots, 8c. to 10c. per lb.; Blackberries, 37½c. per lb.; Figs, white, 6c. to 8c. per lb.; black, 4c. to 7c. per lb.; California Raisins, \$1 to \$2 per box. Vegetables—Cabbages, 62½c. to 75c. per cental; Cucumbers, 30c. to 50c. per box; Tomatoes, 15c. to 50c. per box; Summer Squash, 40c. to 50c. per box; Green Peas, 3c. to 3½c. per lb.; String Beans, 1½c. to 2c. per lb.; Chile Peppers, 50c. to 75c. per box; Garlic, 1c. to 1½c. per lb.; Okra, 4c. Since the above date there has been but little change.

Editorial Cleanings.

A CLUSTER of green Dates, grown on a tree twelve years old, in Yolo County, was on exhibition in the Mechanic's Fair. The Date tree does not come into bearing in Egypt, usually, until thirty years old, and there are trees sixty years old at Los Angeles that have never borne fruit.

POISON-VINE (*Rhus toxicodendron*).—J. H. C. writes: "Be it known after all that has been written on the remedy for this poison, that hot water is a speedy and certain cure. Let it be applied as can be endured without blistering—*probatum est*."

OZONE.—This element is considered a purifier of the atmosphere. Where there is a deficiency there is disease. A Dr. Mantogazza of Pavia, finds that odoriferous flowers throw off ozone largely on exposure to the sun, and therefore this is the great mission of odor in leaves and flowers. It is at any rate a new argument for flower culture in cities.

MANURE from the stables will have the best effect on heavy soils by being near the surface. If plowed under deep it will decompose slowly, and becomes of use to the plants only after a considerable period of time, because of the exclusion of the air. So we would plow it in very shallow, or only harrow it in. Heavy soils that require deep plowing should be plowed before the manure is applied. On light soils barn manure may be plowed in deeper; for such soils admit the air readily to act in decomposing the coarse manure. For similar reasons fresh, undecayed manures have a much better effect on light than heavy soils.

BIG TREES.—It is very difficult for the East to realize the immensity of our Redwood trees, and we do not wonder at their incredulity. But their enormous size is a fact, nevertheless. For instance, Murphy Brothers, of this county, cut down and sawed into lumber at their mill a few years ago, a tree that measured 375 feet in length and 10 feet in diameter, clear of bark. This tree made by actual measurement 37,000 feet of dressed lumber and 16,000 feet of rough, which sold at the mill at usual prices for \$1,080. Other trees in this county measure much larger in diameter, but very few make more lumber than this one.—*Sonoma Democrat*.

Few people know that there are hardly twenty genuine Newfoundland dogs in the United States. The name and breed are so popular and familiar that to all but an extremely small minority the assertion will appear absurd. Nevertheless it is strictly correct. The thoroughbred Newfoundland dog has been gradually losing his identity through miscegenation. The secret of his fast approaching extinction not being more easily observed, lies in the fact that after a mixture of breed between a Newfoundland and any other species, more of the form and characteristics of the former descend to the offspring than occurs in any other instance of interbreeding among dogs. On this account animals that have hardly two-thirds of the genuine breed in them, and which are really fine specimens, are frequently boasted of as splendid Newfoundland dogs. If he be still living, an old man known as "Batty" Sullivan in the island from which the dog derives its name is the last surviving preserver of the unmixed breed of Newfoundland dogs. Several years ago the writer last saw him, and

then the old man was master of the last genuine specimens of the noble dogs. Old "Batty" had then about fifteen full grown pets—looking as big as Shetland ponies—perfectly web-footed, with massive paws over three inches in diameter, and heavy, glossy, coal-black curls all over. Very few men have such frank and honest faces as those splendid brutes possessed. Hydrophobia is unknown among the pure breed. "Batty" made a living by selling his dogs at a high price almost exclusively to Spanish and Portuguese sea captains. He strangely nurtured the prejudice of never selling a male and female to one purchaser.

GROUND SQUIRRELS.—A dry season is the most favorable time to prosecute an onslaught upon the destructive ground squirrels that are the pest of wheat fields. In the southern counties where the crops have been a failure and the country is barren of vegetation, the squirrels are nearly starved out, and if poisoned wheat was put out for them they would eat it with avidity. There are no sheep or cattle on the fields to be endangered by the poison, and with a little pains the squirrels might be effectually exterminated throughout large sections of the country. We noticed on the West Side that the squirrels were abandoning their holes on the plains and flocking to the river bank to find some vestige of vegetation upon which to feed. There never was a more favorable opportunity to exterminate them, and the farmers should go to work at it.—*Stockton Independent*.

A FARMER who has tried it, says that a woolen rag saturated with coal oil, ignited, and thrust into the holes of the pesky squirrels, will effectually and expeditiously exterminate those pests. The experiment is easily tried.

THE USE OF THE TOMATO IN ENGLAND.

—It is interesting to note the growth in public favor of the Tomatoes in the London markets. Only a few years ago they were what salesmen call a "fancy article," now every year shows an increase in the demand for them, and they are common product even early in the season. Large supplies now come from Paris and from Lisbon, these last very large fruit, packed in sawdust. The Tomato, however, soon suffers from traveling, and much of this foreign fruit is not so agreeable to the palate as freshly gathered Tomatoes. Although our climate is too cold for their successful culture in the open air over large portions of the country, we nevertheless believe that if the numerous opportunities our glasshouses, pits, and frames offer for cultivating them were taken advantage of, we should have an abundant supply.—*The Garden.*

BENEFITS OF IRRIGATION. —Irrigation has a wonderful effect on fruit trees and vines in the way of stimulating the growth of fruit. On a recent visit to Lux & Miller's canal firm, in Merced County, we noticed Grapevines loaded with Grapes in all stages of progress—from the blossom to the ripe fruit ready for the table. As long as water is applied so long do the vines continue to bear, and we were informed that from the same vines they have picked ripe Grapes from July to the middle of November. It is so in a great measure with other kinds of fruit, and we saw Apple and Pear trees with mature and green fruit and blossoms on them at the same time. Irrigation doubles the productiveness of the land in the line of fruit as well as of grain, cereals, and root crops. Glorious irrigation! It is the greatest of blessings to the California farmer.—*Stockton Independent.*

It matters to us in life not so much what part we play, as it does to play our part well. In a drama it is not so much a question who played the king or the peasant, as who played the part best.

BOX IN WASHINGTON'S GARDEN.—The box edgings in the garden of Washington at Mount Vernon are still in a healthy condition, though over one hundred years old. They are well kept and cared for. The estate was named Mount Vernon by Washington, out of respect to Admiral Vernon, a distinguished officer, who commanded the West India squadron of the English fleet.

BLACKBERRIES.—Of the 4 Blackberries on the American Pomological Society's list, Kittatinny receives 22 votes; Wilson's Early, 18; Lawton and Dorchester, 13. This decision is right. The Kittatinny is our best Blackberry, although our New York marketmen will not buy it, because "not shiny enough."

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING SEPTEMBER 30, 1877.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 18 Market Street.)

BAROMETER.

Mean height at 9 A. M.	30.03 in.
do 12 M.	30.03
do 3 P. M.	30.03
do 6 P. M.	30.02
Highest point on the 14th at 3 P. M.	30.17
Lowest point on the 8th at 6 P. M.	29.93

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	67°
do 12 M.	74°
do 3 P. M.	74°
do 6 P. M.	67°
Highest point on the 16th at 3 P. M.	94°
Lowest point on the 20th at 6 P. M.	62°

SELF-REGISTERING THERMOMETER.

Mean height during the night.	58°
Highest point at sunrise on the 16th.	67°
Lowest point at sunrise on the 3d.	62°

WINDS.

West and north-west the entire month.

WEATHER.

Clear all day 20 days; variable on 10 days.



HEATH'S LATE CLINGSTONE PEACH.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. VII. SAN FRANCISCO, NOVEMBER, 1877.

No. 11.

NOTES FROM A GREENHOUSE.—NO. 4.

BY CHAS. H. SHINN, AT NILES.

There are some curious things which now and then occur in the chain of greenhouse events, relieving the monotony of existence, and sending the mind along dreamy vistas, in a vain attempt to comprehend the *wherefore*. A little Orange tree has lately blossomed under peculiar circumstances, worthy of note.

Early in last June, or four months ago, the seed of some sweet Chinese Oranges was sown in a box. In July the small plants, about 400 in number, were potted off in two-inch pots. Since then they were shifted once, have all grown well, and, with one exception, show nothing remarkable. One plant from this lot, now about five inches high, has rather peculiar leaves and stubby growth. It blossomed last month (September), producing a very large, perfect, and odorous flower, which remained in full beauty for many days. This flower had all its parts well defined, and did not seem in any way deficient. When I pulled the withering flower apart a healthy germ was visible. Remember that this little tree

was less than four months from the seed, and now appears perfectly healthy. Its future vagaries will be watched with interest, for I consider it a plant of marked originality.

A Fuchsia blossom of the *Arabella* variety appeared last month, which was twice the usual size, and had eight sepals, making a very brilliant display. It formed no seed, but since it was the first blossom on the stem, it may prove a bud variation, which is earnestly to be desired.

The Canterbury Bells have sported a good deal this year. The seed was supposed to be single, but some have had two cups, one inside of the other, with the points alternating, and others have been crimped double in the usual style. Quite a flourish was made in the seed catalogues over a variety with colored calyx, but it often occurs in large beds.

There is a little basket plant called *Eranthemum argentea*, which I have found very tractable, and very pretty for bouquets. The plant is upright, yet graceful, and has bright leaves with distinct white markings in the centre. It is not common, and I hope its culture will extend.

The time for ordering bulbs, both for forcing and for the garden, is at hand. If these are to be ordered from the East it is already late; if to be purchased here, the ground may be prepared in these pleasant autumnal days, and the lists can be made out during the lengthening evenings. I confess, frankly, that I have never admired Tulips, and do not think they succeed well on this coast. But Hyacinths, Anemones, Ranunculi, and the other well known bulbs, are those in which I believe. A good soil, plenty of sand, and plenty of cow manure, are the essentials for bulbs. Hyacinths may be potted next month, and kept in the dark, either under the staging, or covered, so that the roots will start before the top, thus insuring a good supply of flowers.

These are old stories to many, but Horticulture is a succession of educating mistakes for the beginner, and I have too abiding a remembrance of my own old-time failures to think any simplicity out of place in these articles. I remember one mournful day, when the neglect to lift the sash of a hotbed roasted a lot of *Cinnersarias*. Roast *Cinnersaria* is not a delectable dish! And, once upon a time, I sowed evergreen seed in long beds out of doors, which plan worked beautifully, till the small birds swept down upon the tender seedlings, and used up the most of them without any apologies whatever. For the genuine small bird is a sort of feathered small boy, scorning personal property and all boundary fences. But we built a lath house, and it was fun to watch the small bird sweep down in undoubting impudence, get a sliver in his foot, and depart with offended abruptness.

Some one asked me the other day what I considered the most accurate test of the inborn gardener. Now that

was one of those puzzling questions to which numberless half answers are possible, and I thought quietly, looking across the masses of green and bloom for inspiration. At last I led my questioner to a box containing about fifty Coffee plants, which stood in even ranks, and were nearly of a size.

"Do you see any difference there?" I said, rather slowly. "Are those individuals, or merely a monotonous surface of green?"

"Why do you ask that?" was the smiling answer.

"Because the true gardener makes every plant personal, and real, and separate, even as every true nurseryman knows each tree over whole acres, or as the true shepherd knows every separate sheep, or as the true teacher loves the individuality of each child. Now in this little box under consideration here is a crooked leaf, there a twisted one; yet again, one narrow, and another wide; some dark, some light, and some spotted; the stems are of varying thickness; color, angle of inclination, even shape, it may be. The soil is precisely the same over the whole box, and all the plants have the same treatment; yet some are forcing ahead of the rest, some are lazy, and some are industrious, so there even appears to be a difference in the character of plants, if the idea is not too metaphysical. But at least this may be said, that no two plants are exactly alike, and that the truest gardener is the one who is most apt to perceive the difference, and daily act upon it."

I do not remember exactly how the conversation went after that. There was a declaration to the effect that all small plants *did* look precisely alike, and a sort of jubilee over some *Begonias* and striped *Balsams*. So this historian has no further quotations to make.

THE WILSON RANCH, LOS ANGELES.

BY A TRAVELER.

A ride across the breezy plains, ten miles south of Los Angeles, brought us to the ranch of Mr. Ben. D. Wilson, noted all over the coast for his excellent fruits and wines. "Don Benito" Wilson he is called out there, and the name is a good one. Without very much urban polish, he is nevertheless one of Nature's noblemen, and a fine representative Californian. A Tennessean by birth, long before the acquisition of California, he had hunted and trapped across the continent, living for years among the Utes and Apaches, and finally marrying a California senorita, with three leagues square of land, he had settled down in those parts. His noble ranch lies at the foot of the Coast Range of mountains, with their snow-clad summits towering above, the Los Angeles plains in front, stretching away to the ocean, while an intervening roll of hills shuts out the raw winds and fogs of the summer and autumn. Two or three dashing rivulets that issue from the mountains like threads of silver have been caught up carried by *acequias* all along the slopes, whence they are distributed wherever the thirsty soil in summer needs them. Here he has Orange, Lemon, Peach, Olive, Almond, and English Walnut groves, by the many acres—part planted by himself, but several a half century ago by the Jesuit Fathers. His vineyards, as is usual on this slope, are trimmed closely, and look for all the world like a Delaware or Jersey field of old Peach trees, with the tops sawed off. Without trellis or support of any kind, in the spring of the year, these aged vines stand stiff and gnarled, in rows five or six feet apart, themselves about as many inches thick; but in

summer they of course throw out runners that form a leafy wilderness, loaded down with the purpling clusters. In addition he has great herds of horses and cattle, and flocks of sheep by the thousand, that roam over his outlying broad acres and the Los Angeles plains at will. In sauntering through his Orange-groves, he showed us trees, from which he had gathered twenty-five dollars' worth of the golden fruit each, last season, and one that yielded him forty dollars' worth. A few of his Oranges, dead-ripe, were still gleaming amid the rich, deep green of their peculiarly beautiful glossy foliage, and we had some of these fresh and luscious on the table each meal we took with him. In his wine-cellars back of the mansion, he showed us three hundred thousand gallons of wine, the product of a year's vintage alone, and it hadn't been much of a year for wine either. This he reported to be worth only fifty cents a gallon then, but as increasing in price, of course, with age. He makes both white and red wine, of a superior brand to the generality of wines in California, and has branch houses in San Francisco and New York, that dispose of the bulk of it at fair figures. It all has the peculiar sharpness and alcoholic qualities of the California wines generally, but he thinks, with more careful culture, and increasing age, these wines will improve in this respect. He computes the wine product of California at not less than ten millions of gallons annually; and rapidly increasing. The Mission Grape is the one that has been mostly grown for many years, but foreign varieties of many kinds are now fast taking the place of that grape. The white wines are the pure juice of the grape; the red the same, but, as is well known, the color of the skins added. Farther

north, the Sonoma and Sacramento wines are lighter and milder, more resembling claret and hock; but these Los Angeles wines are rather heavy and strong, with a body like those of Spain and Portugal, whence, no doubt, the Mission Grape originally came to Mexico, and from thence to this State. The expressed juice is first put into large casks, holding 140 gallons or more each, whence after due fermentation it is bottled and sent to market. Mr. Wilson states that at the end of a year and a half, the wine usually becomes clear and less alcoholic, but it continues to mellow and soften with age for twenty years, when its delicacy of flavor and oiliness of consistency culminates. Brandy is made mostly from indifferent or miscellaneous grapes, skins and all, and from what we saw of its effects, it is almost as fierce and fiery a liquid, surely, as Jersey lightning or Nebraska needle-gun.

Mr. Wilson lives rather plainly, and in anything but a palatial mansion, but he has a fine library well selected, and is a liberal patron of most of the leading magazines and newspapers, from San Francisco to Boston, as well as some of the agricultural and horticultural periodicals. We found him a very intelligent gentleman, somewhat advanced in years, and well versed in the world's affairs, with an eye keenly alive to passing events both at home and abroad, notwithstanding his comparative seclusion.

Land about Los Angeles, and adjacent to facilities for irrigation or *acequias*, is held now at a good figure; but a few miles from town, it is selling from ten to twenty dollars per acre, and great stock or fruit ranches can be built up here, at no very great outlay, in a few years. The soil and climate are certainly all anybody could desire,

if provided with adequate capital to start Orange groves, etc. These plains and City of the Angels, with the new railroads, north and south, will become more widely known year after year, and with a large population, California, already rich in so many resources and so promising for more wealth, will have reason to entertain increasing pride in this rich and beautiful southern portion of the State.

BENEFITS OF MUCH FRUIT AS A DIET.

It is generally a sign of an abnormal condition of health when a person exhibits a dislike for good ripe fruit of almost any kind. The craving for much animal food and any alcoholic stimulants is a symptom that the more natural diet, chiefly of fruit, bread, and vegetables, is antagonistic to the palate. The gastric juice becomes vitiated with fats, and flesh, and fermented juices or liquors, and therefore any sudden change of food from animal chiefly to vegetable, is repulsive to the taste and system. This reformation should be accomplished gradually, or the fibres of the stomach will be too much weakened at first, and the digestive organs so altered in their functions that even an apple will not be easily dissolved. If one, however, makes the effort gradually, and continues the more natural food patiently, the digestive fluids return to their natural strength and the walls of the stomach become once more accustomed to the presence of raw fruit, so that it is in a short time easily digested. The system then takes on healthy flesh, and the cheeks become naturally full and rosy, as they ought to be in a normal condition. At first a person would be apt to miss the stimulus of heat that is carried from the stomach to every part of the body, but

the experience of many people has borne testimony that if a change to a cooling fruit and vegetable diet is made in spring or summer this loss of excitement is easily and willingly suffered, and after a short time a more agreeable and refreshing feeling is experienced on a more pomonal and farinaceous or bread diet than on a more mixed and flesh or liquid vinous regimen. The excessive perspiration which is often caused by hot foods, and which tends to weaken the system, becomes much less, and as soon as we become accustomed to the improved principle, we do not in the least miss the stimulus of so much unnatural food of flesh and alcoholic mixtures.

Closely related to the subject we are discussing is another of very great importance in the adoption of what may properly be termed a scientific diet. This relates to the quantity of food necessary to the maintenance of as perfect a condition of health as possible, and here as elsewhere an unperverted appetite is the best guide. Especially is this true with those who have persisted in mostly a fruit and farinaceous diet for some time. Most people eat of whatever their food may consist more than they require, and the worst of it is, this excess acts injuriously by its quantity more than by its quality. It may however be said in favor of an almost entirely fruit and bread, vegetable, or grain diet, that it never acts injuriously by its quality, and in excess is less injurious than any other. An overloaded stomach, however, causes, first of all, discomfort and ill-humor, while a joyous feeling is maintained in no way so well as by moderate eating of food of any kind, which is made the principal diet. An instinctive feeling should always tell us when we have eaten enough, whether it be fruit or flesh.

Evidently, we think, it is not necessary that we should vary our articles of food very much, further than the seasons indicate, by constantly presenting us new fruits, vegetables, and grains, unless our food is so illy adapted to our wants that it does not thoroughly nourish our bodies. In wheat, according to analysis, we have the most perfect grain food. But we must not forget that it is a one-sided view of this subject to take into account only the amount of nourishment a food may contain, and leave unconsidered its power to impart elasticity and buoyancy of feeling. The latter is obtained abundantly from fruit, which, according to chemistry, is much poorer in nourishment than wheat, or perhaps any of the cereals.

We, however, recommend a certain variety of food. But at a single meal great variety is neither necessary, nor, to the normal appetite, agreeable. The fewer the number of dishes the sooner the appetite is satisfied, while too great a variety acts as an improper stimulant. It is a flagrant violation of natural law to indulge in course after course of wholly different foods, in the manner seen at fashionable tables. Such excesses lead only to gluttony and disease.

In regard to eating fruit before it is perfectly ripe, it may be said that unperverted instinct is our best guide. A fruit is best when it is most agreeable to a healthy palate. Unripe fruit contains more acid, and ripe fruit more sugar. An excess of acid is neither healthful nor agreeable.

It is very natural that unripe fruit should cause congestion in weak stomachs, yet children in the country who have been accustomed to eating fruits, and whose instincts do not go far astray, sometimes crave unripe fruits, and are

not apparently injured by them, though city children going to the country have to be very cautious in this respect.

Those who are so unfortunate as to be in the habit of indulging too much in what are called intoxicating drinks, would, we think, benefit themselves more by adopting principally our fruit and vegetable diet, and so bring their systems into a more healthy condition, than even by signing the total abstinence or temperance pledges, as by so doing they would be preparing their systems to the more effectually and practical carrying out moderation, at least, in both their eating and drinking, eschewing, almost altogether, much animal, or alcoholic diet, and perhaps, finally, leaving them off altogether, especially the last.

THE ORANGE.

Oranges are distinguished from Lemons more by the character of the fruit than by any marked botanical differences. They are subdivided into two classes, the bitter and the sweet, in which the fruit, again, constitutes the chief distinction.

The Orange tree grows to a height of about fifteen feet. Its stem is round, much branched, and covered with a smooth, shining, greenish-brown bark. The leaves are ovate, pointed, smooth, and shining, and when rubbed become highly fragrant. Their footstalks have wings or lateral appendages, these constituting the chief botanical difference between the Orange and the Lemon. The flowers are large, white, and delightfully fragrant. The fruit is too well known to require description. The exterior or thinner layer of its rind abounds in an otto in which resides the characteristic odor of the fruit. There are two leading varieties of this tree: the common or sweet Orange (*Citrus*

aurantiacum), and the bitter or Seville Orange (*Citrus bigaradia*). The latter differs from the former chiefly in bearing a fruit rugged on the surface, of a deeper hue, and with a pulp sour and bitter instead of sweet; the leaf also differs slightly in the character of its winged appendage, which is more heart-shaped. The essential oils or ottos yielded by the various parts of the plant are more fragrant than the corresponding ones obtained from *C. aurantiacum*.

Originating in the far East, the Orange has spread over the entire civilized globe, and is grown out-doors in all favorable localities. The south of Europe is the chief seat of its cultivation for the extraction of ottos.

The flowers, as before noted, are delightfully fragrant, and, like the Rose bloom, can readily be made to yield their odor by both *enfleurage* and distillation. The finest perfume is, of course, obtained by the former process. From the pomade or oil so perfumed a fine essence is made. The flowers of the *C. bigaradia* are said to be exclusively used for this purpose on account of the superior quality of their odor.

Orange-flower essence is of a decided yellow color, and exhibits the odor of the blossom in great perfection. It is used as a handkerchief perfume, in a pure state (strengthened by some fixing ingredient), forms the basis of the sweet-pea extract, and enters into the composition of many *recherché* bouquets.

By distillation the fresh flowers yield their otto in a concentrated form. The operation is conducted, in the usual way, in small copper stills.

Orange-flower otto, as thus obtained, is of a brownish color, a specific gravity of 0.889, and a fragrant, yet to many persons, unpleasant odor. In its concentrated state the otto is rather more

aromatic than flowery. When properly diluted it improves very much in this respect, but yet fails to approach in delicacy the essence obtained by maceration. This otto, from its high cost, is rarely to be had pure, being mixed with another obtained from the leaf of the tree. The latter is mentioned below.

The otto obtained from Orange flowers is usually known, in commerce, as oil of neroli, a name probably acquired soon after its discovery, which occurred some time in the sixteenth century. Various conjectures have been made as to the origin of this name. It was possibly given to the perfume, as some assert, in honor of the Emperor Nero, but more probably from the reputed fact that the wife of Flavio Orsini, Duke of Bracciano and Prince of Neroli or Nerola, brought it into notice as a scent for gloves.

Orange flower otto is largely consumed in the manufacture of cologne water, of which it is the chief ingredient. It is also used in many bouquets.

Orange flower water is occasionally employed by the perfumer. The best article is that obtained by distillation; a second quality is made from the essence.

Orange peel readily yields its otto by simple expression. The fruit of both the bigarade and sweet Orange is used, the former yielding the best product.

Orange-peel otto is a light-yellow liquid, of a specific gravity of 0.82 to 0.90, and has a strong aroma peculiar to the fruit from which it is obtained. Its general properties are the same whether derived from the sweet or bitter Orange. Of all ottos it is the most difficult to preserve; when exposed to the air it becomes worthless with great rapidity. It is chiefly used as an in-

gredient in toilet waters. It has a place in cologne water, and in some less celebrated preparations for similar use.

The leaves and shoots of both varieties of Orange yield an otto which is known in commerce as the oil of petit grain. The small, unripe fruit was at first its source (whence the name), but the leaves are now said to be exclusively employed instead. It is of a light greenish-yellow color, and resembles the otto of the flowers, but is inferior in odor.

Orange-leaf otto is much used both as an adulterant of Orange-flower otto, and as a substitute for it in the cheaper kinds of perfumery.

FRUIT CULTURE IN THE FOOT-HILLS.

BY S. S. BOYNTON.

The hills to which we allude are those lying at the base of the Sierras, and situated on the eastern side of the counties of Yuba and Butte, constituting a part of the extensive belt of foot-hills stretching from Tuolumne County on the south to Shasta County on the north. From their peculiar situation spring opens earlier among them than it does in the open valley directly west, while they are cooler than the valley in summer, and receive a greater quantity of rain. The soil seems peculiarly adapted to the culture of fruit, while in many localities water from mining ditches can be advantageously used for irrigation. These circumstances indicate that this hilly belt will, ere long, form one of the most productive fruit-growing sections in the State. At present the amount of fruit raised is large, though only a limited amount of it is of the fine varieties. The small fruits are not largely cultivated, Currants, Raspberries, and Gooseberries being

seldom raised for the local market, and rarely ever shipped.

Strawberries ripen in April and May, last from four to six weeks, and are sold from ten to forty cents a pound, according to the season. With choice selections and careful cultivation they can be grown through eight or nine months of the year, some gardeners claiming they can be produced the year round. The Lawton Blackberry is quite plentiful, it ripens in June and July, bears good crops, and sells readily at ten cents a pound.

The Mulberry is not sold in our markets, though it is raised here without difficulty, and bears full crops. The climate is favorable to its growth, as it ripens ten days before the Cherry, while in the East they ripen from ten days to two weeks later than Cherries. Another of the small fruits that could be readily made profitable here is the Pohar or Cape Gooseberry. It is like a Cherry in size and shape, but grows on a bush, is enclosed in a husk, and tastes like a Tomato. We have seen them in a few gardens and they bear plentifully.

The Orange family is represented by the Orange, Lemon, Lime, and Citron. The Orange and Lemon grow with no more care or attention than the Pear or Peach in all the best fruit sections, and in a few years will doubtless be raised in large quantities. We learn that in and near Oroville four hundred Orange trees were set out during the past winter. At present the trees are young, but few of them bearing, and most of the Oranges raised are consumed by the growers, and not put into the market. In the Oroville neighborhood the fruit is better than the Oranges commonly shipped here for sale. We hear of one tree from which twelve hundred Oranges were picked during the past year. A few Lemons and Citrons are raised

for sale, but the number is quite limited.

One of our most profitable crops is the Cherry, when it can be kept from the birds. It ripens about the tenth of May, and varies in price from ten to twenty cents a pound, according to quality. The home demand is good, and hundreds of boxes are shipped yearly to San Francisco. Several varieties are cultivated, but the Black Tartarian is considered the best, both on account of its fine flavor and shipping qualities.

The Siberian Crab Apple is used in considerable quantities, though the demand for them is small.

Cherry Plums are cultivated largely by some orchardists, while others consider them unprofitable to raise. They bear from fifty to three hundred pounds, according to the size and age of the tree, and meet with a ready sale from seven to twelve cents a pound.

Figs form an important and profitable crop in the foot-hill region. Two crops in all localities are grown, and in favorable sections three crops in a season. The first figs ripen about the first of June, and are usually sold fresh. The second crop ripens from the middle of July to the first of August, and the Figs are usually dried. A tree bears from three to nine hundred pounds, according to size and age. The fresh Figs sell readily in the mountain towns, and large quantities are shipped to San Francisco. Three or four varieties are raised, but the most profitable are those known as sugar Figs, as they bring from one to two cents a pound more than the other varieties.

The Olive deserves more attention than it receives at the hands of our fruit-growers. In Italy it is as valuable as bread itself, and the oil to a

certain extent takes the place of milk and butter in many a poor Italian family. In a dry season it would be especially valuable, for it is a hardy grower, and thrives on the poorest soil. A few trees will support an entire family.

Our strong red soil is well adapted to the culture of the Grape, though frost and mildew sometimes cut short the usually heavy crops. The Sweetwater is the earliest to ripen, being in market about the first of July. The Muscat and Alexandria have proved our best raisin grape. The table grapes most in market are the Black Hamburg, Rose of Peru, and White Tokay, selling from five to ten cents a pound. The Los Angeles is the wine-grape of the foot-hills, and much wine of a poor quality is made and sold at fifty cents a gallon. Considerable good wine is also made, but the demand for it is limited. Hundreds of vineyards are set out over the red gravelly foot-hills, and the vines thrive excellently, even where the soil is only a foot or two in depth.

The Chestnut, Walnut, and Almond all thrive well in the foot-hills, but only the latter is raised for sale. The Almond blossoms so early in the spring that the fruit is often destroyed by the frosts, yet considerable quantities are raised every year. They ripen in August and September, bear at three and four years old, and produce from fifty to two hundred pounds, according to the age of the tree and favorableness of the season. The soft-shell Almond sells for about double the price of the hard-shell, the one running from eighteen to twenty cents, while the other only brings from eight to ten cents. The Black Walnut is a rapid grower in our warm climate, and from its good size, fine shade, and excellent timber, is a favorite shade tree among the farmers. The nuts are seldom sold.

The Quince is raised in less quantities than any of the larger fruits. The demand for it is local, and limited in amount.

Plums are a productive and profitable crop, the demand being good and prices fair. Many varieties are raised, among which are the Green Gages, Damson, Blue Egg, White Egg, Washington Plum, German Prune, and Prune d'Agen. Of these varieties the latter is the best bearer; the German Prune is best adapted for drying, and the Washington the most saleable. The Plums which dry well are among our safest crops, for if the market is overstocked the fruit can be dried, and then brings a good price, that is, from twelve to twenty cents a pound. The Plums, with us, all bear at three and four years of age, and there is but little damage from frost or insects.

The Apricot, when not injured by the frost, is one of the best crops to raise, for a good tree will produce from four to six hundred pounds, and the price ranges from eight to ten cents, with an active demand for them. They ripen in June or late in May, after the berries are out of market, or before the other fruits are ready for use. The Early Golden is the first to ripen, while the Moorpark is the finest variety raised.

Nectarines meet with a ready sale when shipped to San Francisco, and the local demand is good at from seven to ten cents a pound. The crop is usually light.

Pomegranates meet with a ready local sale at seventy-five cents a dozen, and will bear from five to fifty dozen, according to the size of the tree. They need to be sheltered from the wind on account of the fruit shaking off. They ripen in August.

Peaches constitute one of the great fruit crops of the foot-hills, many vari-

eties are grown, and nearly all bear heavily. Large quantities are shipped to San Francisco and to the mountain towns of the Sierras, while the local trade is active. The best varieties here are Briggs' Early, ripens in May, and is worth from ten to twenty-five cents a pound; the Strawberry Peach, Early Crawford, Morris White, Texan Ranger, Late Crawford, and Heath. They bring from seventy-five cents to two dollars a box, according to the season and demand.

Pears grow finely here, and large quantities are produced. The late varieties are especially valuable for shipping purposes. Among the early Pears the Early Sugar is considered best. Bartlett and Winter Nellis are the finest of the late Pears, as they are good bearers and ship well. There are too many poor varieties grown in our orchards.

The foot-hills are better adapted for Apples than any other section of California. The flavor is finer than the coast Apples, and they are less mealy than the valley Apples. Large quantities are shipped and dried, while hundreds of tons are fed to hogs, or rot upon the ground. Of the early varieties the Red Astrachan is the favorite, both for eating and cooking. The summer Apples are seldom shipped, and not largely cultivated. Of the fall and winter Apples the leading kinds are Fall Pippin, Rhode Island Pippin, Gloria Mundi, Bellflower, Winesap, Spitzenberg, Swaar, Beauty of Kent, Baldwin, White Winter, Pearmain and Yellow Newtown Pippin. The crop is generally a heavy one, and the demand is fair for good varieties; the poorer ones are almost worthless.

Fruit-growers here labor under the disadvantage of being far from the San Francisco market. From our large

orchards much of the best fruit is shipped there, but even with regular telegraphic communication it is difficult to know exactly when to ship. If the fruit arrives when the market is active, it brings good prices, but if the market happens to be full of any one variety, then that variety is almost a dead loss on the shipper's hands. So many different sections ship fruit to San Francisco that it becomes quite difficult to watch the market sufficiently close to enable our fruit growers to know when to ship their fruit. Among the foot-hill orchards the poor fruit is rapidly being grafted with fine varieties. In five years' time even our best orchards will be twenty-five per cent. better than they are now.

We regret to see Alfalfa sown in several fine young orchards, for in time it will ruin them. The Alfalfa roots descend deep into the earth and absorb the moisture so much needed for the trees. After orchards are five or six years old and in a moist climate, it will do to plant the space between the trees to vegetables or corn, but in no case should Wheat, Rye, or Alfalfa be sown. Where the ground is too dry for the fruit, it needs to be frequently worked over in order to bring up the moisture, and this can not be done where the ground is sown to grain or hay.

We find in many cases in the foot-hills that few aids are given to nature. Not enough manure is used, the bark of the trees is never cleaned or washed, bending down the limbs or bandaging them is never resorted to. Occasionally we find it the practice to pick off a part of the green fruit in order to increase the size of the remainder. This should be done to even a greater extent than it is, and the orchards should, in nearly all instances, be more highly cultivated than they are at present.

Nature has done much for our foot-hill region in giving us a warm climate and a soil well adapted to the culture of fruit, but there is much left for man to do ere our fruit reaches its highest state of perfection.

EARLY FRUIT CULTURE IN ENGLAND.

We know so little of the ancient Britons, that an accurate estimate can not be formed of the fruits and vegetables known to them. It is probable that the only kinds of the former were the Apple, Currant, and Raspberry, and of the latter the Carrot. Of all these it is probable that wild or half-wild varieties were used, and that, as in the case of the Apple, the choice kinds were afterward imported and acclimatized. The Romans were very fond of the Asparagus, and cultivated it most carefully. There is a long account of their method in Cato's "De Re Rustica." Judging from the writings of Pliny the elder (A. D. 23-79), nearly all the fruits which we were acquainted with at the commencement of the present century were in his time reared in and near Rome. The exceptions were the Orange and the Pine Apple. The Romans were acquainted with hot-houses for forcing fruit ("Columella," xi. 3). It will be more convenient if we now take the fruits in order which were either introduced into Britain by that nation, or improved by them, and whose culture was continued by the Saxons, and during the rest of the mediæval period. Although the Apple (Saxon *oppel*) is believed to have been known by the Britons (in the Welsh, Cornish, and Irish languages it is called *avall* or *aball*), the Romans doubtless introduced the choice varieties. The town of the Hæd-ni, on the site of Glastonbury, was called Avallonia when the Romans visited

it. The Anglo-Saxons valued the Apple greatly, and had many orchards. The Domesday survey mentions an Apple orchard at Nottingham. Pearmain Apples are as old as the time of King John. In the fruiterers' bills of Edward I., in 1291, the Costard Apple is mentioned. Blomefield quotes a tenure in Norfolk, 1200, by petty serjeantry and the payment of two hundred Pearmain into the exchequer at the feast of St. Michael annually ("History of Norfolk," xi., 242.) In 1282, the bailiff of Carrick, near Richmond, Yorkshire, stated in his account that he made sixty gallons of cider from three quarters and a half of Apples. A tract on husbandry, written early in the fourteenth century, states that ten quarters of Apples or Pears ought to make a ton of cider or perry. France gave us in the days of Queen Mary the Nonpareil, and Pippins came to us from the Continent in the reign of Henry VIII. For the Pear (Saxon *pera*) we are indebted to the Romans, and, like the Apple, the Saxons valued it highly. In noticing the varieties of fruit grown in this country in past times we must guard against the assumption that all then consumed were grown here. For example, in the reigns of John and of Henry III., Rochelle was celebrated for its Pears, and the sheriffs of London purchased one hundred for the last named monarch in 1223. So that it is necessary to ascertain what was imported. Alexander Necham, master of the Grammar School of St. Alban's (1157-1217), says in his "De Naturis Rerum," "A noble garden will give you Medlars, Quinces, and Pearmain—Pears of St. Régle—Pomegranates, Citrons, Oranges, Almonds, and Figs. Let there also be beds (*areæ*) encircled with Onions, Leeks, Garlic, Melons, and Scallions." Monks were great

horticulturists, and when passing from one monastery to another, or abroad, on the business of their house, doubtless were on the look-out for new varieties of fruits and vegetables, and any novelty in their cultivation.—*Churchman's Shilling Magazine*.

MAIDEN HAIR FERN.—Some idea of the extent to which Maiden Hair Fern is used in Covent Garden for bouquet-making, may be gleaned from the fact that Mr. Rochford, of Tottenham, has several large, span-roofed houses entirely devoted to its culture for furnishing fronds in a cut state. The plants are grown in 12-inch pots, and in order to keep up a regular succession, only a portion of them are cut at a time, those which furnish such fronds being subjected to a lower temperature than the rest, by which means the fronds assume a deeper green color, and last longer after being cut than they otherwise would do.—*The Garden*.

A RECIPE FOR MAKING GRAFTING-WAX.—The following receipt is from a practical nurseryman of great experience: Rosin, six pounds; beeswax, one pound; tallow, one pound; melt, and work until cold. This is to be used warm, when working in the house. For out-door work, J. J. Thomas recommends the same formula, except using linseed oil, one pint, in the place of the tallow. For out-door work, a good wax is made by using one or two pounds less of resin, and one and one-half pints of linseed oil; to be melted, made into a mass, and applied by hand.

GOLDEN VARIEGATED CHESTNUT (*Castanea vesca aurea variegata*) is a new variety mentioned by the *Gardener's Chronicle*, the bold, regularly-formed leaves of which are broadly and distinctly,

though unequally, bordered with a rich creamy yellow, and make it a telling object.

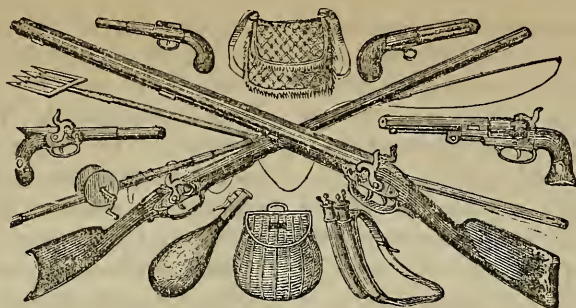
A MAN in Nottingham, England, carries on a trade in worms. He has several persons in his employ who collect them in the meadows and pasture lands in the neighborhood. They are sold by the thousand or quart for bait by fishermen. A fresh-caught worm is very delicate and tender, and easily breaks when put on the hook, but when a worm is properly educated he is as tough as a piece of India rubber, and behaves as he ought when put on the hook.

SCIENCE makes wonderful strides in our day. It is now found that the fermentation of malt, the alcoholization of the juice of the grape, the decay of meat, the gangrene of wounds, the spread of smallpox in the body, and of pestilence through a city, are alike the marvelously rapid growth of minute plants or living ferments.

THE growth of a plant is simply the aggregate result of the enlargement and multiplication of the cells which compose it. In most cases, the cells attain their full size in a short time. The continuous growth of plants depends chiefly on the constant and rapid formation of new cells.

CHERRIES.—The *Sutter Banner* says that G. G. Briggs, whose ranch is in that county, about two miles from Yuba City, has over 3,000 Cherry trees, and his income from that fruit alone will foot up over \$10,000.

NYMPHAEA LUTEA.—The Yellow Water Lily that figured in Audubon, has been re-discovered in Florida, by Mrs. Mary Treat.



Rod and Gun.

HISTORY OF THE INTRODUCTION OF EASTERN FISH INTO CALIFORNIA.

In 1870 the Legislature of California, following the example of the Eastern States, provided for the appointment of a Board of Commissioners of Fisheries, and the present incumbents, S. R. Throckmorton, B. B. Redding, and J. D. Farwell, were then selected. The waters of the State already abounded with fish, embracing a number of favorite species, and the duties assigned to the Commission comprised not only the introduction of choice varieties from foreign parts, but the protection of those already here.

Immediately after their appointment the Commissioners took under consideration the project of introducing some of the more choice species of fish abounding in the East, and unknown on the Pacific Coast. The experiment of transporting young fish over three thousand miles by rail was a bold one, and when accomplished with complete success was probably the greatest achievement recorded in the science of pisciculture.

In 1872, by the assistance of Seth Green of New York, who superintended the preparations and transportation, they succeeded in depositing 15,000 healthy and lively young shad in the Sacramento River above Tehama. The

shad, by its peculiar instincts, proceeds to sea as soon as it has attained sufficient energy to wriggle in deep water, and does not return to its native shoals until three years thereafter, when it has attained its maturity. In the second year a small number of two-year-old fish return to the breeding grounds.

In the spring of 1875 there were indications of the presence of shad in the Sacramento, and the Commissioners exercised great vigilance in protecting them, and compelling the fishermen to return them to the water when they were captured in the salmon nets. Since that year shad have appeared annually in the Sacramento, up to the present season, when a very great increase was manifest.

One specimen that came to the knowledge of the Commissioners was a female fish weighing five pounds, and burdened with embryo life. The fishermen turned large numbers from their nets, though it is possible that an inconsiderable few may have been overlooked.

The interdiction on the capture of shad expires this year. It seems to be quite assured that the dainty shad will be a common commodity in our markets during the months of April, May, and June, or portions thereof. As soon as the Commissioners became convinced that the culture of shad in these waters was practicable, they commenced additional importations.

In 1874 operations were inaugurated on an enlarged scale. An aquarium car was constructed and started hither with a general assortment of piscatorial emigrants, including 60,000 young shad. Everything augured well for a successful passage, until the train had passed Omaha, when the aquarium car skipped the rail while crossing a bridge, and its precious freight was deposited in a branch of the Green River.

No sooner had the Commissioners received information of the disaster than they telegraphed directions to their agents which resulted in the safe transportation of 60,000 young shad in that year.

In 1876 a successful addition of 100,000 young shad was made to the Sacramento colony, all being deposited at the same point in the river.

This year the importation of shad in three lots of over 100,000 each has been a grand success.

The young fry for transportation are placed in tin boxes of 20-gallon capacity, each containing about 10,000. Next year the Commissioners will erect extensive breeding works, with the design of stocking all the rivers of the State with this choice species of fish, and it is hoped the next Legislature will extend to the fisheries the aid and encouragement which this important interest demands.

On the 12th of June, 1874, seventy-nine full-grown bass were received by the California Fish Commissioners and deposited in the Napa River. They have since propagated rapidly, and are thriving well. The bass is quite able to take care of itself, and when once established in its grounds will hold the position strenuously.

One hundred young catfish taken from the Schuylkill River were turned loose in the Sacramento in 1874. The

river and the San Joaquin sloughs are now swarming with them, and they are being distributed to all parts of the State where desired. The introduction of catfish to California waters seems to have been like the translation of the species to a new and better world. A lot of the large species of catfish that abound particularly in the Mississippi River, was also brought over and deposited in the Sacramento.

A lot of jackfish, or "jack-salmon," taken from one of the Ohio rivers, was turned loose in the Sacramento in 1874. They have since been heard from repeatedly, and have no doubt established themselves on a successful basis. The jack is a favorite with the sportsmen, and withal an excellent food fish.

A large lot of eels were placed in San Antonio Creek in 1874, but they appear to have languished and relinquished the wriggle for life on this coast. After the West Side Canal is completed, and an aquarium of dead mules and horses provided, the experiment may be repeated under more auspicious circumstances.

An importation of perch was made some years ago, and the Commissioners contemplated further additions, but were prayerfully persuaded to desist by persons acquainted with the qualities of this fish.

The Commissioners will this fall make an effort to introduce the Eastern lobster. A lot was embarked in 1874, with every provision that could be made for their comfort and convenience on the long journey by rail, but only four survived the hardships of the trip. These were in a very debilitated condition, but there is reason to believe that they recuperated and colonized, as rumors of one or two lobsters having been caught in the bay have reached the Commissioners. By experiments made

at the East this year it has been found that the lobster can undergo sixteen days of rattling about the country on railroad trains, under favorable circumstances.

The attempts to establish the Eastern oysters in these waters have thus far failed of any satisfactory results. The original plants seem to fatten well, but they do not propagate. The Commissioners will probably leave further efforts in that line to private enterprise.
—*S. F. Chronicle.*

PEARL FISHING IN TORRES STRAITS.

BY J. C.

The following yarn has been put together from particulars furnished by the South Sea Islander concerned. He is now in my employ, and was with me before he went pearling:

My name is Sili Tarko, but on board ship the captain and men called me Tile. In the month of May, 1875, I signed articles, and shipped on board the *Pear-le* for two years, the vessel being equipped for a pearl fishing expedition among the pearl beds in Torres Straits. The crew consisted of the captain, three Europeans, and three of my own countrymen. After a prolonged and rough voyage we reached Cape York where we stayed one night, and anchored the next day in a central position among the pearl islands or beds.

After making all snug on board the vessel, and getting in a supply of firewood from an adjacent island, six of us were told off to man the good boat Gorton, in which we were to commence the work of fishing the precious pearl fish from its native "nest." The diving apparatus, provisions, fuel, etc., having been put on board our small craft, we set sail from the side of the

Pear-le, in search of a "bed" to begin operations.

When I engaged in Sydney, the duties that appertain to a sort of generally useful hand were what I undertook to perform, but after acting as tender to the diver for a few days, I was informed that I would have to take my turn at the diving. This I thought very hard and unfair, as I was only getting small wages, while the professional divers were well paid. My protest was not listened to, and I had to encase myself in the diver's dress and explore for many a weary hour among the strange inhabitants and singular marine herbage at the bottom of the Straits seas.

I shall never forget the first time I reached the bottom with the cumbersome diver's dress on. If the reader can vividly realize being in the course of a few minutes transported from our world, on a bright morning, with its sun shining clearly, and with the voices of his fellow beings humming about him, to a world with no sound, and among creatures, some of hideous appearance and some very beautiful—the variety being endless, and all floating or gliding to and fro in a most mysterious way—he will have some idea of what my sensations were. I felt a creeping about my hair and whole body, and the strangeness of my marine associates, and the surroundings, conveyed the impression to my mind that, if not in the "other" world so much spoken about, I was at any rate in a world quite different from our everyday working world. What added to the strangeness of the objects floating about was the fact that they were all magnified by my "glass face," thus making them look more weird than they otherwise would have done.

One day when "down below" send-

ing up the pearl fish, I was startled by a great shark lashing about all round me. I did not feel what you would call alarm; but I should have felt more comfortable by the absence of my frisky friend. I stood quite still to see what he was at, and to be prepared for an emergency. The brute was evidently disporting in a most hilarious manner, and I soon had occasion to arrive at the conclusion that my grotesque appearance had something to do with his friskiness. He sailed round and round me, each giration narrowing the circle and each being varied by extraordinary attitudes. His sharkship kept up the performance for some minutes, when all at once he lay still with his huge head within three feet of my body. He looked me over from head to feet as carefully as if he had been a detective surveying a man "wanted." As he now lay poised I could see his full length and dimensions, and allowing for his being magnified by my "glass face," I estimated his length at twelve feet, with body proportionately large. Every now and again he would open his great mouth and show his immense teeth, and apparently lick his chops. How much longer he might have continued to survey my trembling person I don't know, for I began to feel rather uneasy at the sight of his great teeth and luminous eyes staring at me, so I made a splash with one of my legs, when, to my horror and astonishment, he commenced dancing round and playing with me somewhat in the way that a puppy often plays round its master. I now began to get alarmed, and at once signaled to the "tender" that I wanted to go aloft. Let me assure the reader that I was not sorry when I found myself sitting on the deck of our boat. I must, however, do his sharkship the justice to say that he never at-

tempted to snap at me, but it was the very opposite of pleasant to have so much affection and playfulness exhibited by so strange a customer.

My next visit to the mysteries of the deep was on the day succeeding the incident recorded above. As I descended the ladder, the thought passed through my mind that I had no wish to renew the acquaintance of my frisky friend. The professional diver told me if he came again to make a great splashing and stir up the mud or sand, and he would go away. This advice I determined to follow if his sharkship attempted his larks with me; at the same time I had my doubts whether such a determined "tumbler" would be deterred by such simple means.

We had our boat anchored over a very good bed of pearl fish, and when I got to the bottom I stood and carefully surveyed the surroundings before beginning my work. My line of vision extended through the clear water for 100 yards, and within that circle I could see every object tolerably well. To my left there was a sort of sandy bed, over which a large school of small fish were swimming, and directly they saw me they made toward me, and began going round my person, and at last came right up to where I stood. I kept very still, and they swam through my legs and arms, and poised about my body in a most familiar manner. I had my arms extended and my hands wide open. Every now and again one of them would rest in the palm of my hand, and I determined, if possible, to catch one, just to see what it was like. I made the effort by closing my right hand suddenly on one of their number that I felt sure I should have no difficulty in capturing. What was my astonishment when I opened my fingers to find that my finny friend had disap-

peared. How he got away I could not tell. He was right in my hand when I closed it; nevertheless he was gone. I often tried the same experiment, but never succeeded in catching one.

I had not been working long in filling my bag to send up aloft before I felt something twining round my arm, and to my dismay, when I looked to see what it was, I found a water snake firmly coiled round, just above the wrist. I at once seized hold of the brute's tail and tried my best to pull it off, but all to no purpose. What was I to do? I tried, and tried again, but no use. At last I encompassed my left arm, where the reptile lay coiled, with my right hand, and pressed downward, and by this means slid the slimy visitor down over the hand, and he glided away as if nothing was the matter. At the time I felt very nervous, for I had never come in contact with one of them before, but I learnt by subsequent experience that they are not dangerous.

After working away for two weeks we cleared out the bed we were then on, and our provisions being short, we weighed anchor and set sail for the vessel.

One day, just as the first streak of dawn was breaking, I was awakened by a great splashing right alongside the boat, and the first thing I saw was a great alligator in hot pursuit after an immense dugong. The latter was evidently severely wounded, for he left in his wake a wide stream of blood, but nevertheless he went through the water at a tremendous rate. Whether he was ultimately captured or not I could not tell, for the two disappeared round the end of the island.

Next day when I was down diving I saw, sitting on a patch of green stuff, a white object exactly like a monkey. So complete was the resemblance that

I could not discover any difference, except the color—the ears, legs, arms, hands, eyes, and attitude being precisely like those of the ordinary monkey. I tried to approach it, so as to get a nearer view, but the first step I took it was gone! How or where I could not tell; but as the disappearance was so quick, in fact, like a flash of lightning, I came to the conclusion that the brute had a hole close to where it was sitting, down which it had gone. I could not, however, discover it, although on this, as on subsequent occasions when I saw it, I tried to do so.

The sea was like a sheet of glass, and I noticed the spot they had chosen for me to cast anchor seemed more placid than the surrounding waters, save and except that its area—about two hundred yards square—appeared alive with animal life. Turtle, water snakes, dugong, and other marine animals were skimming about the surface in great abundance. What a magnificent sight it presented to see these queer creatures disporting themselves in the afternoon sunlight amid the little wavelets! What enjoyment they appeared to gather in their frisky turnings and twinings. Who can tell what they thought and felt? If rapid movement, leaping, gamboling, and going hither and thither, is any index to pleasure, they must have been enjoying its very acme.

The anchor had hardly touched the bottom before my two companions disappeared out of the boat. They had both dived down to explore the bed. In a very short space of time they both came up on either side of the boat, each having in his hands a splendid specimen of the pearl shell. They made me understand by their gesticulations that there were plenty more like those they had brought up down be-

low. They threw what they had into the boat, and again dived. About the same space of time elapsed as when they first went down, when the one on the land side of the boat again appeared with another large pearl fish. Instead of throwing this into the boat and going down as before, he rushed to the gunwale, cast it in anyhow, and climbed up the side as if the "old gentleman" were after him.

But what had become of the other? I looked in the direction that he had gone down, but could see no sign of the man. The one who had got into the boat came over to where I was sitting, in a state of great excitement, and he began gesticulating in a wild manner, pointing his finger to the spot where his companion had dived. To make me understand what he meant, he opened his mouth and caught hold of the calf of his leg. While he was thus trying by this startling method to make me comprehend what he wished to describe, the subject of our solicitude came to the surface right close to the boat. He had no sooner got his head above water than he let out a yell that reverberated through the island, and the water round him was tinted with blood. He reached up his hand to catch hold of the gunwale, while his companion and I seized him by the hair of the head. We got his body on a level with the boat, and in the act of lifting him in, a shark seized hold of his only remaining leg, and nearly wrenched him from our grasp. The poor fellow, while down below, had been attacked by a shark, who had taken off his right leg before he got to the surface, and it was while we were pulling him in that the same or another ravenous brute took off the other. It was a clean bite, or he would certainly have snatched the man from us. We

laid him in the bottom of the boat gently, and did all we could to allay his sufferings. Poor wretch, how he suffered! Heaven only knows what he went through. He only lived about ten minutes. Judging from the contortions of his face, the frightful writhings of his body, and terrible groans, the time, although so short, to him must have been a long lifetime of torture.

That night, when we reached the vessel and explained what had occurred the captain said he would not allow another man to go down without being encased in the diving-dress. The next day the poor fellow was buried upon the island.

Some days after this event we were anchored over the bed where the unfortunate native had lost his life. I was working down below in the diving-dress, and sending up a fine lot of splendid pearl-fish—the biggest I had ever seen. I had been at work about an hour, when all at once I felt something strike the side of my helmet. I put up my right hand to feel what it was, when to my amazement I found a fish about two feet long stuck hard and fast. His tail was lashing about, and after several vain attempts I managed to secure it. I got a firm hold, and tried to disconnect it from my head-gear. But pull as hard as I could, not a move could I get out of the brute. While I was struggling away with might and main, another of them fastened on to my left side. I was now badly fixed. While one lashed with his tail across the glass front of my helmet, the other did ditto across my stomach. When the second had taken hold, I let go the tail of the first, so that both had full swing now. It is all very well to describe the position I was in, but to feel it at the time I tell you was no joke.

Only two had fastened on to me, but how could I tell at the time whether I might not have every inch of my body similarly occupied. What sort of fish were they? and what were they up to? These were the questions that I asked myself as I seized both fish, and vainly endeavored to disconnect them from my person. Pull as I would, not one inch could I move either. Still I worked away at their tails, determined to conquer if possible. I might just as well have tried to balance our boat upon my nose. Stir they would not. In the midst of my tussle a turtle came swimming close to me, when to my great relief both fish let go simultaneously, and darted off after the turtle. Whether they caught the unfortunate or not I don't know, for they were soon out of sight.

When I went aloft and told the divers of my encounter, they only laughed at me, explaining that the fish that had fastened on to my body were only "suckers." We subsequently caught one of them with a line, and on turning it on its back it fastened to the deck, and there was not a man on board strong enough, even with both hands, to displace it. The "sucker" is at the back of the head, and looks something like an elongated five-shilling piece with fret-work in the centre. This sucker, when it takes hold, forms a vacuum, and nothing less than a torpedo shock would loosen the hold when once fixed.

KIT CARSON.

When the war broke out, and most of our troops were withdrawn from the plains and mountains, he applied to Mr. Lincoln for permission to raise a regiment of volunteers in New Mexico, to protect our settlements there, and the good President very properly granted

it. At the head of these, Kit did excellent service during the war, on one occasion taking 9,000 Navajoes prisoners with less than 6,000 men, and at its close was ordered to Fort Garland and given command of a wide region there. We found him in log quarters, rough but comfortable, with his Mexican wife and half-breed children around him. We had expected to see a small and wiry man, weather-beaten and reticent, but met a medium-sized, rather stoutish, florid, and quite talkative person instead. He certainly bore the marks of exposure, but none of that extreme "roughing it" that we had anticipated. In age he seemed to be about forty-five. His head was a remarkably good one, with the bumps of benevolence and reflection well developed. His eye was mild and blue, the very type of good nature, while his voice was as soft as a woman's. He impressed you at once as a man of rare kindness and charity, such as a truly great man ought always to be. As simple as a child, but brave as a lion, he soon took our hearts by storm, and grew upon our regard all the time we were with him. He talked and smoked far into the night each evening we spent together, and we have no room for a tithe of what he told us. Born in Kentucky, he emigrated to the plains and mountains when a child, and attached himself to a party of trappers and hunters, when he was so small that he couldn't set a trap. When he became older, he turned trapper himself, and as such wandered all over our possessions, from the Missouri to the Pacific, and from British America to Mexico. Next he became a Government guide, and as such piloted Fremont and others all over the plains and through the mountains. He confirmed the accounts we had heard, that Fremont, as an explor-

er, was somewhat of a charlatan, and the worst time the Pathfinder ever had was, when on one of his expeditions, he disregarded his (Kit's) advice, and endeavored to force the mountains northwest of where Fort Garland now stands. Subsequently Kit became a U. S. Indian Agent, and one of the best we ever had. Familiar with their language and customs, he frequently spent months together among them, without seeing a white man, and indeed became a sort of half Indian himself. In talking, I observed that he frequently hesitated for the right English word; but when speaking bastard Spanish (Mexican) or Indian, he was as fluent as a native. Both Mexican and Indian, however, are largely pantomimic, which may have helped him along somewhat. The Utes seemed to have the greatest possible confidence in him, and invariably called him simply "Kit." Said Sherman, while at Garland, "These redskins think Kit twice as big a man as me. Why, his integrity is simply perfect. They know it, and they would believe him and trust him any day before me." And Kit returned this confidence by being their most steadfast and unswerving friend. He declared all our Indian troubles were caused originally by bad white men, and was terribly severe on the barbarities of the border. He said he was once among the Indians for two or three years exclusively, and had seen in the old times an Indian kill his brother even for insulting a white man. He protested, that in all the peculiar and ingenious outrages for which the Indians had been so much abused of late years, they were only imitating and improving on the bad example of wicked white men. He pleaded for the Indians, as "poor ignorant creatures," whom we were daily despoiling of their homes and

hunting grounds, and his denunciations of the outrages and wrongs we had heaped upon them were sometimes really eloquent.

"I'll tell you what, I don't like a hostile redskin any better than you do, and when they are hostile, I've fit 'em—fout 'em—as hard as any man. But I never yet drew a bead on a squaw or a papoose, and I loathe and hate the man who would. 'Tain't nateral for brave men to kill women and little children, and no one but a coward or a dog would do it. Of course when we white men do sich awful things (and I have known several instances of this), why these poor ignorant critters don't know no better than to follow suit. Poor things! I've seen as much of 'em as any white man livin', and I can't help but pity 'em. They'll soon be gone anyhow."

Poor Kit! he has already "gone" himself to his long home. But the Indians had no truer friend, and he would wish no prouder epitaph than this. He and Sherman were great friends, and evidently had a genuine regard for each other. They had known each other in California in '49, when Sherman was a banker here, and Kit only an Indian guide. In '65, when Kit was at Leavenworth on a visit, Sherman sent for him to come down to St. Louis, and they spent some time together very pleasantly. Now Sherman returned his visit by coming to Fort Garland, in the heart of the Rocky Mountains.

A GOOD DWARF CELERY. — We think this is still to be desired. We have some fair varieties, but they are often disposed to be branchy, and to have more leaves and stalks.

THE census of 1876 gives the population of France at 36,905,788.

Selected Articles.

FAREWELL.

BY GEO. ARNOLD.

Summer is fading ; the broad leaves that grew
So freshly green when June was young are
falling ;

And all the whisper-haunted forest through
The restless birds in saddened tones are calling
From the rustling hazel copse and tangled dell,

" Farewell, sweet summer,
Fragrant, fruity summer,
Sweet farewell ! "

Upon the windy hill, in many a field,

The honey bees hum slow above the clover,
Gleaning the latest sweets its bloom may yield ;

And, knowing that their harvest time is over,
Sing half a lullaby and half a knell,

" Farewell, sweet summer,
Honey-laden summer,
Sweet farewell ! "

The little brook that babbles 'mid the ferns,

O'er twisted roots and sandy shadows playing,
Seems fain to linger in its eddied turns,

And with a plaintive, purring voice is saying
Sadder and sweeter than my song can tell,

" Farewell, sweet summer,
Warm and dreamy summer,
Sweet farewell ! "

The fitful breeze sweeps down the winding lane,

With gold and crimson leaves before it flying ;

Its gusty laughter has no sign of pain,

But in the hulls it sinks to gentle sighing,
And mourns the summer's early broken spell.

" Farewell, sweet summer,
Rosy, blooming summer,
Sweet farewell ! "

So bird, and bee, and brook, and breeze make
moan,

With melancholy song their loss complaining ;
I, too, must join them, as I walk alone

Among the sights and sounds of summer's
waning ;

I, too, have loved the season passing well—

So farewell, summer,
Fair, but faded summer,
Sweet farewell !

HYACINTH LEAVES.—A newspaper paragraph says that the leaves of the Hyacinth, cut off near the bulb, will make new bulbs as Geranium leaves do.

BOTANICAL RESEARCHES IN THE ROCKY MOUNTAINS.

Sir Joseph Hooker, whose botanical researches embrace the greater part of Europe, the Indies, from the Bay of Bengal across the Himalayas to Thibet, the Antarctic regions, and southern part of South America, New Zealand, Australia, South Africa, Morocco, and Asia Minor, gives an interesting summary of his researches into the flora of the Rocky Mountains. He says: In no part of the temperate globe can a more varied and instructive botanical journey be performed than one that follows the great line of railway from the eastern to the western seaboard. In none will sharper contrasts in vegetation be experienced, and in none are these features marked by such variety and beauty, especially the trees, both evergreen and deciduous. As in other countries presenting marked contrasts in vegetation, so in the United States flora, the changes are accompanied by, and are more or less dependent upon, alternation in geographical features and climate. Commencing on the east, there is first the broad belt of forest vegetation extending to the Mississippi and to the west of it, and following the line of its affluents marked by the prevalence of oaks, ashes, walnut, and hickories, elms, willows, buckeyes, and, above all, the plane tree. This region is again subdivided into two by the Apalachian chain, which both forms a barrier to various kinds of trees and shrubs characteristic of countries east and west of it, and has furnished various kinds of oak, pine, rhododendron, etc., peculiar to itself. West of the Mississippi almost the whole of this tree vegetation disappears, not suddenly, but one by one, as the affluents of that stream are followed, the willows and poplars almost alone stretching

across the prairies to the base of the Rocky Mountains. The forest region is, as every American knows, succeeded to the westward by a second belt of vegetation, viz.: the treeless prairie, with its grassy downs variegated here and there with yellow sunflowers and other plants of that tribe, including the compass plant, when oaks are seen only in thin clumps on low elevations, and willows and poplars by the watercourses. To this again succeeds the third belt, the plateau of the Rocky Mountains, which is simply a more elevated tract of the prairie raised some six or seven thousand feet above the sea, and intersected in various directions by Rocky Mountain ridges rising, on an average, about one or two thousand feet high, and crowned by numerous peaks, which attain a total elevation of twelve to fourteen thousand feet. With the Rocky Mountains a more complete and sudden change in the flora is met with than in any meridian to the east of them. The luxuriant forests of Western America have here totally disappeared, and except along the river banks hardly any arboreal vegetation is seen until an elevation of five to six thousand feet is reached. Below that elevation the slopes, whether rocky or undulating, and the great interior prairies, here called "parks," are, except along the watercourses, as treeless as the prairies to the east of them. Above that elevation an evergreen forest vegetation commences, of more kinds of pines than are to be found in any part of the world except America, often mingled with, or succeeded by, a luxuriant growth of aspen, that gives a green hue to the flanks of the mountains. This forest belt extends upwards to 12,000 feet, and even higher in some localities of this mountainous region.

A SHORT LESSON IN BOTANY.

To offer a short lesson in botany for those of our readers who may not have had an opportunity to study that beautiful and useful science, allow a brief explanation here of a few technical terms. It will enable any one who wishes to do so, to separate a flower into its different parts, that is, to analyze it; and will prevent such terms from being an unknown language in the future to those who wish to learn them.

Every perfect or complete flower, such as the Lovegrove, Violet, Pink, and Cowslip, is naturally divided into four parts, called the calyx, the corolla, stamens and pistils; the first name being of Greek, the remaining three of Latin origin. Calyx means cup. It is the outer covering of the bud, is usually green, and is frequently divided into parts like small leaves.

Corolla means little crown. It is the colored part which we generally call the flower, and when open it usually rests on the calyx, as if in a cup. It surmounts the flower-stem like a crown. It may be single, or divided into separate parts. Inside of the corolla we find small thread-like members, of two different shapes. The outer ones are called stamens, meaning threads. The ones in the centre, and attached to the upper part of the young seed-pod, are quite unlike the stamens in form, and are called pistils, from *pistillum*, a pestle, so much do some of them resemble the pestle of a druggist's mortar.

It should be further remembered, that, when the calyx and corolla are separated into parts, the parts of the calyx are called sepals; of the corolla, petals.

Linnæus discovered, but little more than a hundred years ago, that difference

of sex exists in plants as among animals, and that stamens are males and pistils females in the world of flowers.

The calyx and corolla of a flower may be wanting, and frequently are, but the stamens and pistils must be present for the plant to reproduce its kind. Flowers may have but one stamen and one pistil, or several of each.

On this simple principle, Linnæus based a system by which all the flowering plants known in the world are arranged in classes and orders. The number of stamens forms the class; the number of pistils, the order. Each class contains two or more orders. To each he gave suitable names, most of which were derived from the Greek words for man and woman and the Greek numerals. For example, a plant whose flower has but one stamen and one pistil belonging to the class *Monandria*, literally a plant with one man, that is one stamen, and order, *Monogynia*, meaning a plant with one woman, or one pistil, and so on for other classes and orders.

Linnæus thus divided the whole vegetable kingdom into two great sections, the flowering and flowerless plants, the latter being either entirely without stamens or pistils, or not showing them. The former section is divided into twenty-three classes, while all flowerless plants, such as a Fern, a Moss, a Seaweed, and a Fungus, being comparatively small in number, form but a single class, the twenty-fourth and last.

In this way he reduced the knowledge of plants to a science, and is hence called the Father of Botany. His plan is known as the Artificial System, and though it has to a great extent given way to the Natural System of Jussieu, so called because it classifies plants more in accordance with their natural qualities and resemblances, it will al-

ways be a useful aid to students of botany. It was Linnæus, too, who invented the plan of giving a double name, in the Latin language, though sometimes derived from Greek, to every plant and animal in the world. The first name, like *Dodecatheon*, makes the genus, and is called the generic name; the second, as *Meadia*, makes the species, and is called the specific name. The first corresponds to a man's surname, the second to his given name. The order in which they are placed follows the Latin usage, in putting adjectives after their nouns. The plan reminds us of rolls, made out in alphabetical order, in which the surname comes first.

On these simple principles, all the 150,000, or more, different kinds of plants throughout the world have been named and classified, or will be, so soon as they become known to naturalists, thus erecting to the genius of Linnæus a monument more lasting than marble or brass.

Most of these points have been explained, especially to call attention to the difference between the American Cowslip, as found in California, and the species described by Professor Gray. He says the Eastern kind has the calyx 5-cleft; corolla, 5-parted, with 5 stamens and 1 pistil. In the California species, the calyx is from 5 to 7-cleft, usually 6; corolla 5 to 8-parted, usually 6; stamens 5 to 7, usually 6; pistil 1.

The Primrose of Europe, according to Loudon, blooms from March until June; our Cowslip, from February or March to May. Prof. Gray speaks of the Eastern species as very handsome in cultivation. So, no doubt, would our species be a most valuable addition to the choice flower gardens of California.

Editorial Portfolio.

OUR FRONTISPIECE.

HEATH'S CLINGSTONE PEACH.

We present to our patrons this month an engraving of a Peach upon which Downing bestows his finest epithets, and they are epithets which every one will approve who has had his chin flooded with the luscious juice with which this fruit rewards the biter. The engraving shows the outline well, but memory must supply the creamy whiteness of the skin and the generous curves of the contour. We can not do the fruit better justice than does Downing in the following description:

The Heath is the most superb and most delicious of the late clingstones. It seldom ripens in New England, but here and to the southward, it is one of the most valuable kinds, of very large size, and the very finest flavor. To be sure it is a cling, and that detracts, of course, somewhat from its value, but its firmness is somewhat in its favor for drying and canning.

Coxe informs us that this is a seedling produced in Maryland, from a stone brought by Mr. Daniel Heath from the Mediterranean; and it is still frequently propagated from the stone, without variation, similar to the Damsion Plum, and a few other fruits. The tree is vigorous, long-lived, and moderately productive; with the shortening-in mode of pruning the fruit is always large and fine, otherwise often poor. This tree is well deserving of a place on the espalier rail or wall in the North, and is nearly always so cultivated in England. Leaves nearly smooth on the edges, with reniform glands. The flowers are small.

Fruit very large, oblong, narrowing to both ends, and terminating at the

top with a large swollen point; the suture distinct on one side. Skin downy, cream-colored white, with a faint blush or tinge of red in the sun, or a brownish cheek. Flesh greenish-white, very tender, and melting, exceedingly juicy, with the richest and most luscious flavor, hardly surpassed by any other variety. Its fault is to adhere rather too closely to the stone. It ripens in the Eastern States in October, and here two or three weeks earlier, and frequently keeps a month after being gathered. Its lateness in ripening is a valuable quality, as very early or very late fruits always command the best prices.

FLAX AND CASTOR BEANS.

There can be no doubt among intelligent persons that a great part of the prosperity of California depends upon the trial and cultivation of a variety of products, and what makes this fact the more encouraging, our Pacific Coast, from its remarkably and almost exceptionally genial climate and diversity of soils, is capable of growing successfully a larger variety of crops than almost any other section of the globe. It is high time that we depended for profit on different productions than the common cereals. Under these true views of correct farming, we have no hesitation whatever in strongly recommending to agriculturists the advantages resulting from the raising of Flaxseed and Castor Beans. We learn that the Pacific Oil and Lead Works, as well as other firms here, are prepared to contract for this next year's crop of Flaxseed and Castor Beans, at rates that, with proper cultivation on suitable land, will make them among the most profitable crops grown.

We have in our possession several letters from practical men, which afford ample information as to the best mode

of cultivating the above valuable seeds for several purposes—the Flax, both for the seed and the staple and straw, and the Castor Beans for their oil.

The growing of Flax is found not to impoverish the soil, but leaves it in a better condition for other crops. It also stands any frost that we have on this slope at suitable elevations. The ground be well pulverized. The Flax is best harvested with the reaper, and should be thrashed as soon as possible after being stacked. The cost of harvesting and stacking is about \$2 per acre. The thrashing is a very important operation to be properly performed. The yield is from 200 to 2,400 pounds. On upland, from 600 to 1,000 pounds per acre; on adobe, from 1,200 to 2,000 pounds per acre. Flax has no enemies in rust, blight, or insect.

As to the cultivation of Castor Beans on dry land — soil, a light-colored, sandy loam, a good crop is about 600 pounds; on damp land, 1,000 pounds and upwards; on dry land irrigated, and properly cultivated, the same. If suitably cultivated by plowing early and deep, the Castor Bean is more certain than most crops, gives a good margin for profit, and is easily worked.

For further reliable information on the raising of Flax and Castor Beans we refer our readers to a pamphlet just published by the Pacific Oil and Lead Works, 202 California Street, San Francisco. P. O. Box 2252. In this pamphlet will be found letters from the most practical and successful cultivators of Flaxseed and Castor Beans, giving all the details, and instructions how to proceed profitably in the production of these two useful crops.

CRAYON PORTRAITS.

For several years past we have been attracted by the fine work and admira-

ble likenesses of many of our citizens, done in crayon by Mr. Scott Tydball. These portraits are sometimes executed from cabinet, miniature, or photographic pictures. We noticed a portrait of Dr. Jessup, one of our best dentists, and admirer of the fine arts, and also a passionate admirer of the rod and gun. This quarter size picture is remarkable for its close resemblance to the above gentleman, and the softness, yet free boldness, of the work is truly pleasing and satisfactory. Mr. Tydball has, to suit the times, lowered his price from one hundred dollars a picture to fifty, which, considering the first-class style of his art, is a very small compensation for the beautiful workmanship, which is more interesting than the finest engraving could be. Mr. Tydball's studio is No. 115 Kearny Street, at Shew's Gallery.

PARIS EXPOSITION OF 1878.

We take the following from a circular issued from the office of the Immigrant Bureau:

"Never before in our history has such an opportunity been offered to display our resources, and make known to the people of Europe the advantages to be secured by emigrating to our shores. Our agricultural and mineral resources are superior to those of any other part of the Union, and they must and will be developed. To draw upon China for the muscular power necessary for this development means degradation, poverty, and ruin in the near future. To draw from Europe means elevation, wealth, success. Our millions of acres suited to the vine should be cultivated by the people of France and Southern Germany. The children of Spain and Italy should grow for us the Olive and the Fig, and supply the world with our raisins. Norway, Sweden, Denmark,

and Poland will furnish us with brawny muscle, coupled with intelligence, and a love of liberty in spirit and in harmony with our institutions. The precious and useful metals shall be wrenched from our mountains by the hardy Welchman, and our city by the Golden Gate be made the great commercial and financial centre of the world. Oregon—our sister of the North—has already taken steps to be fully represented, and reap the benefits her exhibit will surely bring to her. Let us, then, look to our laurels, or we shall soon have to surrender the honor of being known as the Banner State of the Pacific."

Our efforts at the Centennial Exhibition at Philadelphia, last year, were, unfortunately, a comparative failure. The parties who were entrusted with California exhibits of fruit managed the matter badly, if not with delinquency. Let us then endeavor to cut a very different figure at Paris, and do ample justice to the numerous and wonderful productions of our State of every kind. The Committee on Fruits are Dr. John Strentzel, John Lewelling, Jas. Thompson. On Dried and Canned Fruits and Vegetables—Geo. W. Deitzler, R. B. Blower, Sidney M. Smith, W. B. Ewer, S. Wangenheim, C. J. King of Wm., John Lewelling. Agricultural and Horticultural—Prof. E. W. Hilgard, E. J. Hooper, C. Walcott Brooks, J. P. Pierce, A. W. Briggs, Thos. A. Garey, J. DeBarth Shorb, J. A. Wilcox. The Committee on Agriculture and Horticulture will prepare a process and apparatus for showing the different soils of our coast for each county, and the various crops of the same, with suitable descriptions. An accurate colored map of the whole will also be formed so as to present a bird's-eye view of the entire State, with reference to its natural as well as artificial products. The various

strata, and their measurement to a considerable depth will also be presented, with many other data of importance and interest to the world and to immigrants.

FRUIT CULTIVATION AND REPORT OF FRUIT AND VEGETABLE MARKET.

English Walnuts and Spanish Chestnuts, which are flourishing so well in many parts of California, indeed are doing as well as any other fruit trees, are particularly applicable for the boundaries of large orchards, in which they will screen the other trees from impetuous winds and cold blasts, all of which are to be arranged in rows about forty feet apart in the row.

The misfortune is, that too frequently after these trees and orchards of all kinds of fruit are planted, they have seldom the proper and unremitted care bestowed on them which is so necessary for their welfare, and for which their plentiful bearing thereafter so fully justifies. Boughs are often suffered to hang dangling on the ground, their heads are so loaded with wood as to be almost impervious to the sun and air, and they are left to be exhausted by moss and lichens, and injured by cattle, etc. By a redundancy of wood the roots are exhausted unprofitably, the bearing wood is robbed of part of its sustenance, and the natural life of the tree unnecessarily shortened, while the superfluous wood endangers the tree by giving the winds an additional power over it, and is injurious to the bearing wood, by retaining the damps, and preventing a due circulation of air. The outer branches only are able to produce fruit properly; every inner and underlying branch ought, therefore, to be removed. It is common to see fruit-trees with two or three tiers of boughs pressing so hard upon one an-

other, with their twigs so intimately interwoven, that a small bird can scarcely creep in among them. Trees thus neglected acquire, from want of due ventilation, a stunted habit, and the fruit becomes of a crude, inferior quality.

The trees are very often almost entirely subdued by moss and other parasitical plants, which kill many, and injure others so much that they are only an incumbrance to the ground, and a disgrace to the country and neighborhood. This evil may easily be checked by scraping and rubbing off these robbers early in the winter or spring, with a rounded iron scraper, etc., when men have little else to employ them, and only seek something to do in idle, expensive, and unprofitable amusements. Draining the land in some wet situations too retentive of moisture, will sometimes prevent or cure moss or lichens, or digging round the trees on the approach of the rainy season, or in spring, and bringing fresh mold, or the scouring of ponds and roads, or the rubbish of old wells, well prepared and pulverized, and laid round them.

These considerations ought to induce you to a close examination of your standard Apple, Pear, Plum, Peach, Fig, and Cherry trees, etc., and, where found necessary, to thin their branches, scrape and rub the bark clear of moss, roughness, and insects, cut off all dead or irregularly-placed limbs and branches, and also any luxuriant unfruitful shoots, and such branches as appear to be in a decaying or cankerous state, all of which must be cut off close to where they were produced, or to some healthy leading branch or shoot, for the bark can not grow over a stump, because there is no power to draw the sap that way, for which reason always cut rather a little within the wood if possible.

We are not advocates for much doctoring with old decayed or sickly trees, but the reverse, therefore recommend as the most preferable way to replace such with young, healthy trees, so soon as they show strong symptoms of decay. Whenever you meet with a tree, the fruit of which you esteem, propagate it immediately while in health, by budding or grafting, etc., and if it should afterward get into a declining state, replace it with one of the same, or some other good kind. Never propagate from a sickly tree if you can well avoid it, for its disorder will be carried with the buds or grafts, and in all probability will ultimately work their destruction.

And now for the markets: On or about the middle of last month (October), according to the accurate accounts of the *Commercial Herald*, five car-loads of Eastern Cranberries were received, and for them was considerable competition; sales had been made to the trade as low as \$14 per barrel, while others asked \$14 to \$14.50 in jobbing lots for best in market. The Paloma from Tahiti arrived during the month with 150,000 Oranges. From Honolulu the H. W. Almy brought 100 bunches of Bananas. Lemons and Limes were scarce and high. Oregon Apples continued to arrive on every steamer from Portland; low freights brought large quantities of good keeping varieties to this market, as they could ship them here as cheap as those from across the bay, so that our California growers can not look for fancy prices later in the season, as the market will be largely supplied with Oregon consignments all through the winter. Grapes were very abundant, and the market healthy. Quinces were unusually dull. Pears were in fair supply—the demand was confined to ripe eating varieties. We

are indebted to Howe & Hall for the following quotations: Apples—Choice, \$1 to \$1.50 per box; common, 50c. to 75c. per box. Pears—Winter Nellis, 75c. to \$1.25 per box; White Doyenne, 75c. to \$1.25 per box; common, 50c. to 75c. per box. Plums, 6c. to 7c. per lb. Quinces, 60c. per box. Prunes, 8c. per lb. Pomegranates, 8c. to 10c. per lb. Peaches—Mountain, \$1 to \$1.50 per box; river, 50c. to 75c. per basket. Strawberries, \$6 to \$8 per chest. Blackberries, \$10 to \$15 per chest. Oranges—Tahiti, \$35 to \$40 per M. Lemons—Sicily, \$15 per box. Limes, \$17 50 to \$20 per M. Bananas, \$2 to \$4 per bunch. Cocoanuts, \$5 to \$6 per 100. Watermelons, \$3 to \$10 per 100. Cantaloupes, 50c. to \$1.25 per doz. Grapes—Tokay, 75c. to \$1 per box; Black Morocco, \$1.25 to \$1.50 per box; Muscat, 60c. to \$1 per box; native, 30c. to 75c. per box; wine, \$15 to \$18 per ton; Mission, 50c. to 60c. per box. Dried Fruit—Apples, 4c. to 6c. per lb.; Peaches, 7c. to 9c. per lb.; Pears, 6c. to 8c. per lb.; Plums, 3c. to 4c. per lb.; pitted, 12c. to 14c.; Prunes, 12c. to 15c. per lb.; Apricots, 8c. to 10c. per lb.; Blackberries, 37½c. per lb.; Figs, white, 6c. to 8c. per lb.; black, 4c. to 7c. per lb.; California Raisins, \$1 to \$2 per bx. Vegetables—Cabbages, 60c. to 75c. per cental; Cucumbers, 50c. to 75c. per bx.; Tomatoes, 20c. to 40c. per box; Green Corn, 15c. to 20c. per doz.; Marrowfat Squash, \$6 to \$7 per ton; Green Peas, 3½c. to 4½c. per lb.; String Beans, 3c. to 3½c. per lb.; Chile Peppers, 50c. to 75c. per box; Garlic, 1c. lb.; Okra, 4c. per lb.; Egg Plant, 70c. to 80c. per box. All through the month of October there were enormous supplies of the best Grapes of all sorts.

About the same time there were received some lots of Grapes, which were remarkable for their great size, and

were larger generally than the same kinds raised in the best cold houses in the East or in England. There were large stocks of Grapes in market, and they therefore decreased in prices. Soon after this lighter shipments followed, and prices improved a little. Apples and Pears commanded about the same prices as at the beginning of October. Owing to the rains which fell on the 24th and 25th of October, the receipts of Grapes were light for a few days, causing an active demand and advanced prices. Apples from Oregon continued to arrive by every steamer. Strawberries became at the latter end of October more plentiful and of better quality.

We quote a contemporary's report on the first of last month on the fruit market, which says: "The season for Strawberries is getting well advanced, while that for Blackberries is about closed." When our readers abroad read this, they will be apt to exclaim: "Well, that time of the year (Nov.) is pretty good for those fruits to last, especially Blackberries." But such is our climate here, and it will be in the power of those who will pay the price for them (which is not immoderate), to enjoy Strawberries even beyond the Christmas holidays. Our accurate authority, the *Commercial Herald* of Nov. 1st says: During the past week four steamers from Portland arrived with 5,000 boxes Oregon Apples, which had a very depressing effect upon the market and consignments coming from adjoining counties. Oregon Apples on the wharf sold from 70c. to \$1 per box—low rates for Apples in splendid condition. We note the arrival of a car-load of Lemons from New York in eighteen days, consigned to Howe & Hall. Limes are very plentiful, both Los Angeles and Mexican—the demand limited. The

steamers City of Panama and Newbern brought large invoices of Oranges from Mexican Ports. The Newbern brought from San Jose (Mexico) 1,881 boxes 270 crates and 230 packages Oranges, and 320 bundles of Sugar Cane. The crates contain 275 to 300 Oranges each, and are selling at \$8 per crate. Heretofore these Mexican Oranges have arrived here about Christmas. The first consignment of California Oranges—of the new crop—arrived a few days since from J. W. Wolfskill's orchard at Los Angeles. This also indicates an early season for semi-tropical fruit. The poorer grades of Pears are almost unsaleable—stock accumulating. The market is overstocked with Grapes. It requires a great effort to dispose of them at any price—growers appear to be trying to hurry them all in before the next rainfall. Cranberries are plentiful, and Eastern importers find it difficult to obtain cost for their ventures—some lots selling as low as \$13 per bbl.

PARAGUAY TEA.

The Paraguay Tea plant, or Maté tree of South America, will not, probably, flourish in any part of this country. It is a species of *Ilex*, or Holly, and the prepared leaves form an article of considerable commerce in South America, but has not yet been introduced as an article of diet in any other country. Its consumption is said to be steadily increasing, and it is probable that it may yet become an article of importation here as well as in Europe, if its reputed good qualities are truly reported. The leaves contain theine, the bitter principle of tea and coffee, but in less quantity than is found in either of these well-known beverages, although some analyses have placed it equal to coffee in its stimulating properties.

There are two methods of preparing it for use. For domestic consumption, it is simply dried in the sun, the leaves are then broken up in small fragments, and kept dry until used. In this condition it resembles the Chinese Tea, and is similarly prepared as an article of food.

For commercial distribution it is mostly reduced to a powdery state; the leaves being dried or scorched by artificial heat until they become sufficiently brittle to be pounded into powder. Maté is prepared by adding boiling water to a small quantity of the powder. It is asserted that Paraguay Tea can be placed in market at rates much below those of Coffee, and that it is equal to the latter as a nourishing beverage.

LAKES AND WATER PLANTS.

Mr. William Saunders, the very intelligent superintendent of gardens and grounds, at Washington, D. C., thus speaks of lakes and of those at the gardens, and the introduction of native water plants therein:

“The ornamental as well as the picturesque effects of this class of plants are mostly quite neglected in modern landscape gardening. It is not uncommon to find artificial lakes in parks and pleasure grounds wholly destitute of this class of vegetation, and although water-surface is seldom uninteresting in scenery, there is no reason why it should not possess all the attractions and sanitary effects which can be imparted by the introduction of suitable flowering plants.

“No flower in the garden-border can excel, either in beauty of form or in delicacy of fragrance, the white Water Lily, *Nymphaea odorata*; the large, cup-shaped, yellowish flowers, boldly projected out of the water on long foot-stalks, of the *Nelumbium luteum*; and

the less showy blossom of the yellow Pond Lily, *Nuphar advena*, in connection with the massive spread of the large leaves, especially those of the *Nelumbium*, which are frequently 18 inches in diameter, and produce an effect equal to the best efforts of the most distinguished artist in that popular formation of 'foliage' plants known as 'carpet-bedding.'

"In addition to the Water Lilies, various other interesting species of water plants have been introduced, and are spreading rapidly in the lake. Several of the curiously-horned seeds of the *Trapa natans* were thrown in, and in due time the small triangular-shaped leaves made their appearance on the surface, neatly arranged in roseate form. Several plants of a tropical *Limncharis* spread rapidly during summer, and produced abundantly of its yellow flowers. The Duckweed, *Lemna*, thrown in a sheltered cove, speedily covered the surface with its diminutive greenery. In deeper water, plants of the Eel-grass, *Vallisneria spiralis*, were planted, and in shallow recesses various species were introduced, as, *Potamogeton*, *Calla*, *Pontederia*, *Calltha*, *Acorus*, *Polygonum*, etc. On prominent points, tall, reedy plants will be disposed, such as *Typhas* and *Sparaganiums*, with *Cyperus*, *Juncus*, and smaller growths, as marginal plants to the taller central groups.

"A small island was formed, having its surface raised about six inches above the water-level with spagnum, in which low-growing bog plants were inserted, such as the Pitcher-plant, *Sarracenia purpurea*, the Horse-tail Grasses, *Equisetums*, with *Habenarias*, and similar low-growing forms that are to be found in woody swamps and wet meadows.

"The effective arrangement of water and bog plants in and on the margin of

lakes should be as much a subject of artistic study as is the arrangement of trees and shrubs in park scenery. This branch of landscape decoration is wholly neglected, but it is destined to become popular, and it will awaken an interest in an extensive class of plants that are but little known, and that possess a characteristic individuality of form and beauty, which, when received in connection with their natural surroundings, can not fail to recall pleasant associations to the mind, compared to which the landscape effect produced by a group of flowering shrubs will appear exceedingly tame and uninteresting."

INDIA RUBBER PLANTS.

Mr. W. Saunders, of the Public Gardens at Washington, writes: "In the praiseworthy endeavors to introduce new industries into the Southern States (and California) requests are made for economic plants of many kinds that are strictly tropical productions, and among these may be placed the India-rubber-bearing trees.

Various plants afford caoutchouc, the elastic, gummy substance better known as India-rubber, but as far as is known it is solely produced by plants of tropical climates. In the East Indies it is collected from *Urceola elastica*; from several species of *Ficus*, mainly from *Ficus elastica*, and from a few other species, natives of the East Indies and western tropical Africa.

South American rubber is also extracted from plants of different genera. The best is said to be obtained from the *Hevea brasiliensis*, a native of the Para forests, considered to be distinct from the *Siphonia elastica*, which furnishes the largest portion of the rubber entering into the commerce of that country. The Sand-box tree (*Hura*

crepitans) yields a milky juice, which is similarly converted into caoutchouc by evaporation. These plants belong to the natural order *Euphorbiaceæ*, a large family of plants, mostly yielding a milky juice, containing acrid and poisonous properties.

Mexican rubber is extracted from a native tree, the *Castilloa elastica*, which grows abundantly near the Gulf coast. This plant is botanically allied to the rubber-producing *Ficus* of the East Indies.

A new elastic gum has recently been produced in Mexico, which is said to be derived from a native herbaceous plant allied to the family of Asters. This plant would probably succeed in the Southern States and in California.

These are strictly tropical trees, for which we have, perhaps, no very suitable climate; but attention might profitably be directed to the gum-producing Mesquit tree of Texas (*Algarobia glandulosa*), which yields a non-elastic gum of the nature and possessing all the qualities of gum-arabic.

Editorial Gleanings.

POISONOUS ARTIFICIAL FLOWERS.—Very often in order to obtain a desirable shade, poisonous coloring powders have to be introduced into the manufacture of artificial flowers, much to the injury of the poor girls who have to sit hour after hour bending over them. Occasionally these workwomen are attacked with very severe stomatitis, leading ultimately to ulceration. This is owing to picric acid, one of these poisonous powders. It is introduced into the system by the common habit of moistening the fingers with saliva, previous to twisting the stalks of the flowers. If this evil can not be remedied, it is at least possible to warn those who are

most liable to the danger.—*Cor. Ag. Gazette.*

THE RAIN TREE.—The Consul of the United States of Columbia in the department of Lereto (Peru) has written from Yurimagus to President Prado, informing him that in the woods adjacent to the city of Moyobamba exists a tree called by the natives *Tamia-caspi* (rain tree) which possesses some remarkable qualities. It is a tree of about fifteen meters (about fifty feet) high when at maturity, and of about one meter in diameter at the base, and has the property of absorbing an immense quantity of humidity from the atmosphere, which it concentrates and subsequently pours forth from its leaves and branches in a shower, and in such abundance that in many cases the earth in the neighborhood is converted into a perfect bog. It possesses this curious property in its greatest degree in the summer, precisely when the rivers are at their lowest and water most scarce; and the writer proposes that it should be planted in the more arid regions of Peru, for the benefit of agriculturists.—*Panama Star and Herald.*

DWARF SERVICE BERRY.—I have been greatly pleased this year, as well as previously, with the fruiting of this nice little shrub. Plants two to three feet high, and of about the same diameter, have been bending with their clusters of luscious fruit, ripening at the last of June. I think the plants bear as many quarts as Gooseberries, of berries about half an inch in diameter, and as delicate and superb as the finest Raspberries. Mine have never failed to bear since they have been large enough, and they are certainly worthy of extended cultivation. I find there is a worthless sort sent out from Bloomington, Ill. Persons growing the lat-

ter will not appreciate my high opinion of the Dwarf Service Berry. I know nothing of its history, and wonder it is not more generally grown. I have not seen plants larger than Currant bushes, and I have plants eight or ten years old.—*Dunreith, Ind.*

WATERING PLANTS.—Plants set against walls and piazzas frequently suffer from want of water at certain seasons, when other ground near them is quite wet. Draw away the soil around each plant so as to form a basin; fill it with a bucket full of water, allowing it time to soak gradually away, and when the surface has dried a little, draw in loosely the dry soil over it, and it will do without water for some weeks. This applies to all plants wanting water through the season. If water is merely poured on the surface, it is made more compact by the weight of the water, and the harder the soil becomes the easier it dries, and the result is, the more water you give the more is wanted.

SUCCESS WITH FLOWERS.—Says the *Ohio Farmer*: Some people are never successful with flowers, while others are universally so. There is such a thing as too much care, and it is equally as injurious as too little. We know of one lady who was always seeking advice about the management of this and that flower, and always took everybody's advice, until her flowers perished. Then she tried again, using her own judgment, assisted in a general way by a standard work on this subject; her success has been all that could be desired since. Some water too much. No rule about supplying water can be laid down—except the general one—water whenever needed. This leaves it to the discretion of the grower, and the habits of each variety must be closely observed, to be suc-

cessful. It is a great accomplishment to be able to bring out all the rich beauty of a flowering plant—a greater one than to be able to make an imitation in wax, or even in water colors or oil.

THE ARTILLERY PLANT.—A lady friend of ours has a large specimen of this curious plant, which she has grown since last fall, in her kitchen window, and it has given her more satisfaction than all her other window inmates. It kept constantly green and growing, and as sunlight increased, its mantle of miniature muskets thickened, till now it represents a model umbrageous tree, with boughs so succulent and heavy, that a rough shake or breath would seem to shatter them. Associated with *Oxalis*, *Mahernia*, *Verticillata*, *Petunias*, and a few others, it made January look like May. A great addition to this kitchen window in mid-winter was the festooned drapery of the Madeira vine.—*Gardener's Monthly.*

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING OCTOBER 31st, 1877.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 18 Market Street.)

BAROMETER.

Mean height at 9 A. M.	30.12 in.
do 12 M.	30.12
do 3 P. M.	30.11
do 6 P. M.	30.11
Highest point on the 24th and 25th at 12 M.	30.20
Lowest point on the 14th at 6 P. M.	30.00

THERMOMETER.

(With north exposure and free from reflected heat.)	
Mean height at 9 A. M.	63°
do 12 M.	68°
do 3 P. M.	69°
do 6 P. M.	62°
Highest point on the 7th at 3 P. M.	82°
Lowest point on the 27th at 6 P. M.	57°
SELF-REGISTERING THERMOMETER.	
Mean height during the night.	54°
Highest point at sunrise on the 7th.	65°
Lowest point at sunrise on the 31st.	48°

WINDS.

South-east and south-west on 6 days; north and north-west on 6 days; west on 19 days.

WEATHER.

Clear on 19 days; cloudy on 4 days; variable on 8 days.

RAIN GAUGE.

	Inches.
20th.....	0.20
21st.....	0.05
22d.....	0.31
25th.....	0.02

Total..... 0.58



PAINTED EXPRESSLY FOR VICK'S MONTHLY MAGAZINE.

PHLOX AND PANSY.

Wells, Gropius & Co. 61 N. 5th St. New York, N.Y.

THE

California Horticulturist

AND FLORAL MAGAZINE.

VOL. VII. SAN FRANCISCO, DECEMBER, 1877. No. 12.

CONCERNING SHADE TREES.

BY CHAS. H. SHINN, AT NILES.

It is a sign and proof of the good in humanity, that men have, from the earliest ages, planted trees which produced no edible fruit, but were simply beautiful. The utilitarian would plant nothing but Bartlett's and Pippins, in sad monotony; but there are those who realize that the best gift of a tree is intangible and measureless. To these, the lovers of deep, song-haunted woods and mountain streams a tree is a temple, full of active life and wonderful processes, varying in every species, and indeed most worthy of study in those kinds which have not been modified by the meddling tendencies of man—the gardening animal.

Since, as I write, the rain-clouds are looming in the south, and the wild geese, with their harsh clangors, flying over, it is time that we forget the long dry summer, and begin to plan anew, in the hope of a favorable season. There may be somewhere a vacant spot on which we can plant a tree that shall strengthen as we grow feeble, and brighten our memory hereafter with its fresh blossoms and waving clustered

leaves, and broad, sturdy branches. Perhaps you, gentle reader, have just laid the hearthstone of a new home, and all the naked acres lie around it, waiting for the thought and labor that shall make it a glowing and fruitful paradise. Then surely it is time, as the blessed rain creeps nearer, to think of seeds and plants, of gardens and avenues, of fruit trees and shade trees. It is time to hunt up Elliot, Hoopes, Downing, Fuller, Asa Gray, and all noted authorities and lovers of things horticultural. It is also time to dally a little with tree catalogues, a taste for which is a very profitable thing—for the nurserymen—and also a very pleasant thing for the buyers.

I hope no one who plants trees this winter will arrange things after the method of my friend Williston, whose passion is for evergreens. His little place fronts south, and you drive in under a continuous archway of Monterey Cypress, and circle around a vast green island of Pine and Cedar, to the shaded porch protected by four sentinel-like Italian Cypress. The few deciduous trees that his wife begged for have been contemptuously dismissed to the north side of the house, around

the rambling barn and moss-covered corrals. The rather evident result has been that a more unhealthy place for a winter residence can not be found in Alameda County. The shaded walks are never dry; the shaded house drips, and stains; the shaded people look pale and bloodless. The whole place is a victim to a misapplied affection for the conifers. Had the same trees been massed in clumps, relieved by trees of a different type and growth, and kept far enough from the house to allow it to stand in clear relief against deeper masses set behind, the effect would have been artistic and vigorous.

In California the conifers must be used with a sparing hand, except for hedges and wind-breaks. Very many places are made damp, gloomy, and forbidding merely by a surplus of conifers. Small plants do not thrive well near them, and they are expensive to keep in order. Still, we must admit their rare power in combination. They give strength to the landscape; they are embodied silence; we love their defiance of the season's changes.

If I were planting conifers I should choose *Cupressus Lawsonia*, with its dark and drooping grace; the *Picea Amabilis*, the Douglas Spruce, the *Taxus baccata*, and *T. Hibernica*, the *Taxodium distichum* or Southern Cypress, which loses its leaves in winter, our common Redwood, wherever it will succeed, the Tom Thumb Arbor Vitæ, also the Golden, *Cupressus Goveniana*, of dwarf growth, and remarkably showy when in flower, *Pinus Lambertiana*, and *P. excelsa*. This I should call a beginning, and every one should be labeled, and have plenty of room to develop its characteristics.

But we concluded, a few paragraphs ago, that deciduous trees were the main dependence, so we must desert

the interesting group of conifers, and proceed to our larger subject.

Deciduous trees give a daily variety to the grounds in which they are planted. Some bud while others are in full blossom, and some are loaded with ripened seed. Some, as the *Paulonia imperialis*, blossom on leafless stems; others, as the Mountain Ash (*Pyrus quercifolia*), are chiefly ornamental when covered with clustered berries. They vary too, in growth, for some pierce the very heavens, some are compact in growth, and others are pendulous. The greatest variety, however, is observed in the form and grouping of the leaves, which may be simple, compound, serrate, lobed, palmate, feather-veined, glossy, glaucous, fine, or massive. Thus the deciduous trees take the first rank in landscape gardening.

One or two specimens of the *Ailanthus* thus give a sub-tropical appearance, but they must be planted where the soil is not disturbed near the roots, for they are apt to sucker badly. The wood is very white, tough, and durable.

Among the Ashes, *Fraxinus Europa* and *F. salicifolia* have pleased me most. The Ash needs heavy pruning, and a stout stake on the windward side.

The Beech is a slow grower on this coast, yet it must always rank as eminent among the noble trees. The native Beech (*Fagus ferruginea*) and the Purple-leaved, are most desirable, although there are many varieties, as the Cut-leaved, the Fern-leaved, and the Oak-leaved.

The Elm, the Linden, the Mulberry, and the Catalpa are very suitable to plant along the roadside. The Catalpa will group well with the Monterey Pine. The Hickory, Chestnut, Pecan, and Butternut are good avenue trees. The Ginko (*Salisburia adiantum*) has trilobed leaves on long petioles, which

give the tree a peculiar appearance, that harmonizes well with buildings or rocky walls. The feathery-leaved Honey Locust is very useful in groups, or for roadsides, where only partial shade is desired.

The weeping trees form a very lovely class. Every one immediately thinks of the Weeping Willow, first introduced into England by Pope, who planted some little twigs in his garden at Twickenham. But the Weeping Ash, the Weeping Beech, the Cut-leaved Weeping Birch, the Dwarf Weeping Cherry, and the Camperdown Weeping Elm, are all beautiful. The Weeping Mountain Ash can be grafted on the common variety. The Weeping Sophora japonica should be better known. All weeping trees are apt to bring sad memories. They are in landscapes the sweetly pathetic chord, the minor key. They should cluster around old ruins, and follow the winding streams, and ripple modest lakes with their graceful limbs. Most of all, in the quiet cities of the dead, they should droop as kind mourners above the gleaming piles.

Thus much I have written in vain if no one is moved to plant a tree. Whoever places a seed or tree in the kindly earth is king over forces no man has reckoned. By virtue of his act the buds swell, the leaves unfold, the fibres strengthen, and after over his gray hairs the wind shall tremble through the branches, and sing him softly to sleep. The children who played under "grandpa's tree" will go out into the world, armed with home's love and home's training; the tree will reach its broad and blessing arms over all their hopes and victories. It may not be a "Talking Oak," yet, perhaps, a weeping Elm, a singing Maple. It shall be a palace of birds, a wilderness of bees, a yearly pyramid of bloom, a constant

delight. Then, when its life fades, for even trees die, its knots and tribulations shall live on in the shape of a costly table or polished bracket, or the trinket box of some coquettish maid, or the wooden cross of some poor sailor, pressed to his dying lips, while drifting on the naked sea.

CALIFORNIA VEGETABLES.

BY WM. C. L. DREW.

Two decades have hardly passed since the first vegetables were raised in the Golden State. In this short period it has been fully demonstrated that no land in the civilized world is superior for the production of vegetables, fruit, or grain. The great essential is a supply of water. From November to May, except in seasons like that of 1877, there is usually a copious supply of this much needed element. From May to November, however, the supply is the reverse, there being very little or none from natural sources. Consequently, it has to be furnished by artificial means. To supply this vast system of irrigation, ditches have been constructed throughout every county in the State, and on land where water from this source can be secured, vegetables, which have no superior, can be raised.

The earliest and most troublesome of our garden pests is the gopher. Hardly has the planter deposited the seed in the earth, before this mischief-maker has it resurrected. Fine seeds are not generally disturbed to any great extent; but Squash, Cucumber, and Melon seeds are seldom left unmolested, acres being often cleared by the gopher, very few hills being missed. The only sure remedy is to poison the seeds. This may be done by soaking them in a solution of strychnia for twenty-four

hours before planting, or by opening them and working in a small quantity of the strychnine, and planting one or two of these poisonous seeds in every hill, especially in the outside ones.

The striped or cucumber bug is one of the most annoying fellows we have to deal with. Many are the plans that have been proposed to conquer this invincible insect. Of these, the best and safest, is to keep one's eyes open, and so soon as it makes its appearance, to dust the plants with wood-ashes in the early morning; this will prevent very great devastations, but will not entirely subdue the scourge.

Green lice, which are such an annoyance to the florist, also disgust the gardener. They infest this Cabbage, Lettuce, and Salad plants, and, in fact, anything in the shape of plants, so long as they are green and tender. After trying every remedy that was given in our horticultural press to subdue these pests, I tried soapsuds. This I found to be the great long-looked-for. It should be made rather strong, and applied in the evening. The next day, if you examine, you will see them dying by thousands. Two applications will clean the worst infested plants. They should be washed off with clean water.

The cut-worm and the brown squash bug also give many a great deal of trouble. I have never been bothered with them. Birds, also, are troublesome, as they will clear large tracts of seed before it has hardly sprouted.

The water and insects mentioned are the only real drawbacks to the successful raising of vegetables in California. So far as the insects are concerned, they could be managed, but the cost of water and the great trouble of getting it on the land, are not so easily managed. Then, again, sometimes, it is wholly impossible to get water.

In the East it is generally the custom for every family that has land, to have their vegetable garden; in California, however, the case is quite different. Here you very seldom find families who raise their own supply of vegetables, as they depend on obtaining what they need from the peddlers or Chinamen. The latter have monopolized the vegetable gardening in California. They raise and sell vegetables at about half the prices at which a respectable white man can grow and dispose of them. Many of our best citizens have been driven from making a living by raising vegetables to supply our cities, by these human outcasts. The white man in every town and village, who has attempted to raise vegetables for a support, has had to come in competition with these slaves—for the Chinaman is nothing better, having been sent out here by the head "boss" at home, to whom he has to send his earnings. He lives on two or three cents a day; and what white man can do that? The Chinese are surely driving every white tiller of the soil in this State to starvation; but this does not come under my heading, so I must refrain from further comment on this scourge of California. It will not be necessary for me to do more than to refer to the monsters in the vegetable line, which have been raised in California, as all horticultural journals have more or less referred to them.

In many parts of the State vegetables of all varieties can be had at any season of the year. The gardener plants his seed all the year round; in fall he plants for spring, in spring for summer, and so on through the year. The markets of San Francisco are supplied with Green Peas and other delicacies at Christmas. A few notes, however, may not be out of place in regard to

some of the popular varieties. Asparagus is not as plentiful here as in the East, but still it is raised in considerable quantities, and comes in about mid-winter, lasting until April or May, according to the dryness of the season. Beans are raised in large quantities; the dwarf varieties being the most popular. They are tough and stringy, if not well watered; they are in market very early, and last for a long season. Beets grow all the year, and can be had at any time. Cabbage is always in market; if water can be obtained they are very rich and tender. Carrots are raised in limited quantities; they grow very sweet and tender, and should be a staple crop in this State. Celery does tolerably well, but the summer season burns it considerably. Cucumbers grow very large and tender, and are a favorite vegetable. Lettuce is more generally raised than other kinds of vegetables. It grows almost wild, coming up year after year from self-sowing. Melons are raised in large quantities, some seasons far beyond the demand which, however, is immense. Onions do well, making large bulbs in a single season. Parsnips are always a good crop. Radishes are in market from one year's end to the other, and are generally very tender and crisp. Turnips are usually a failure. Tomatoes—well! it is impossible to convey any idea of their growth. They are always fine.

ON THE PROPER CULTURE OF ANNUALS IN CALIFORNIA.

It has often been said by persons who ought to know better, that the culture of annuals is an evident failure in this, our much loved State.

If those who come here with gay hopes and high ambitions must leave behind

them the Asters, Balsams, Stock, Rose-moss, Bachelor's Buttons, and all those things whose homely, old-fashioned name is so much sweeter than any exactness of botany, then we want to be sure of it, and weep duly over our loss. But if, as I have evidence, California is the paradise of the fairest among the annual tribe, let us rejoice and sing pæans.

There is a grace intangible about some of our frailest flowers. The rare beauties of the greenhouse, and the costly shrubs which are found in the gardens of wealth, too often tell a story of mere hired and menial proficiency; but the small, modest gardens, tended by members of the family, are restful, simple, and picturesque. Flowers for a small garden must be of easy culture, showy, and valuable for bouquets. It is advisable to devote some space to well chosen annuals in even the smallest garden, for they fulfill these three requirements in a remarkable degree. There is a charm about their rapid growth and bloom, a richness about their showy colors, especially when massed, and a peculiar grace and mildness attached to their use in bouquets.

Although annuals are grown by the acre, merely for seed, in some places, yet they seldom are brought to perfection here. The reason is that they are usually sown at the wrong time. All hardy annuals should be sown with our first rains, in masses, where they are to stand. This is altogether the best method for our native annuals, as *Gilia*, the *Godetia*, *Leptosiphon*, *Nemophila*, *Whitlavia* (a handsome plant, with blue, bell-shaped flowers), and *Collinsia*, bearing its crimson, white, and purple flowers, in diminishing circles, on a nodding spike. The half hardy annuals in the central and southern portions of the State may be sown about

the same time, or a little later, in boxes, where they will get somewhat better care. The tender annuals must not be sown outdoors until all danger of frost is past.

Bear in mind that the secret of success is to sow as early as possible. Mix some sand and decayed leaves with the surface of the bed; mellow and smooth it with your utmost precision; scatter your seed thinly, cover them lightly, and mark the place. Then shelter them by light brush, evergreen boughs, lath frames, or old sacks, until they are fairly up. Thin them early in their career, so that they may not become "drawn," or, in other words, pale and spindling. All through the winter this part of the garden will, with some weeding, take care of itself, and you will have a strong stock of early blooming plants. Sometimes better success is attained by starting all seeds, even of hardy annuals, in boxes, and transplanting. Much depends on the character of the garden soil. If it is not adobe, sowing with the first rains is preferable, wherever no snow falls in winter.

But supposing that the soil is satisfactory, and that all garden preliminaries have been settled, let us decide what kinds of annuals are desirable. The leading catalogues, such as Bliss', Vick's, and Henderson's, are apt to enumerate a vast and much-praised variety, some of which are very nice; while others are quite the reverse. I have tested, at one time and another, most of the kinds which seedsmen offer, and, though some are lovely, I propose to warn a too confiding public against others.

I shall therefore give lists of the annuals which I have found most useful or most obnoxious, hoping, at some future time, to speak of the leading kinds.

The annuals useful for bouquets are: *Ageratum*, *Anagallis* (or English Pimpernel), *Antirrhinum* (or Snapdragon), *Aquilegia*, *Asters*, *Balsam*, *Browallia*, *Candytuft*, *Cacalia*, *Delphinium formosum*, *China Pink*, *Diadem Pink*, *Digitalis*, (or Foxglove), *Godetia*, *Pansy*, *Sweet Peas*, *Phlox*, *Ten-week-stock*, *Salpiglossis*, *Schizanthus*, *Whitlavia*.

Annuals useful for massing: *Double Larkspur*, *Clarkia*, *Rocket*, *Candytuft*, *Collinsia*, *Convolvulus minor*, *Dwarf Nasturtium*, *Leptosiphon*, *Scarlet Flax*, *Lobelia*, *Petunia*, *Verbena*, *Aster*, *dwarf French Marigold*, *Pansy*, *Portulacca* (or Rose-moss), *Sanvitalia*, *Procumbens*, *Zinnia*, *Abronia*, *Calliopsis*.

Rapidly growing vines: *Morning Glory*, *Cobæa scandens*, *Canary-bird Vine*, *Tall Nasturtium*, *Maurandya*, *Aristolochia siphon* (or Dutchman's Pipe), *Adlumia* (or Fringe Vine), *Balloon Vine*, *Cypress Vine*, *Thunbergia* (the last three are very tender), *Trichosanthes* (or Serpent Gourd.)

Of stately growth for large beds or shrubberies: *Holyhock* (double), *Sunflower* (double), *Ricinus* (or Castor Bean), *Datura*, *Japanese Maize*, *Euphorbia*, *French Honeysuckle*, *Amaranthus*.

Not approved. The following are mainly useful as weeds, their culture not strenuously insisted upon: *Agrostemma*, *Calampelis*, *Eutoca*, *Carduus* (Thistle), *Hieracium* (Hawk weed), *Jacobea*, *Limnanthes*, *Linaria*, *Malva*, *Centurea*.

Although, of course, people may not all agree with these lists, yet I believe it will be found that the first four embrace all really desirable kinds, and the last warns the interested reader from the leading "sells." In fact, to condense annual talk still further, if a person gets the best varieties of *Asters*, *Balsams*, *Pinks*, *Petunias*, *Stocks*, and

Pansies, they will have those flowers on which painstaking florists have spent the most labor in years past. The power of improvement and of variation in some of these is very wonderful. The wild *Viola tricolor*, not larger than the little yellow species which blooms in April on all our hills, has become the rounded and richly-colored Pansy; the single cruciferous flower of the wild Gilly, not larger than a Mustard blossom, has been enlarged and doubled to the queenly Stock; the weedy Aster, as at first imported, with its single row of petals and its coarse, yellow centre, has also felt the march of improvement, and possesses fully double, rich, abundant blossoms.

At a future time I shall describe some free-blooming annuals not generally known, and give directions for culture.—*Chas. H. Shinn, in Pac. Rural Press.*

PANSIES.

The old-fashioned Heartsease or Pansy, has, of late years become so improved in size, variety of color, delicacy of tints, and curious coloring, that they have got to be much sought after by all classes. Indeed, the ease with which they may be propagated has enabled florists to sell them so cheap as to be within the reach of every lover of flowers. As cheap, however, as they are sold in cities, they are not thereby available to those who live far removed from urban life; and cheaply as they may be bought of florists, they may be raised still cheaper from seed.

It is true, named varieties originally selected from seedlings, can not be had except from florists, who, from hundreds of plants select a few which they consider worthy of propagation from cuttings; still, the amateur may do the

same with choice seedlings, and thus propagate them indefinitely. All that is necessary is to fill a pan half full of sharp sand, wet it thoroughly, stick in the cuttings pretty thick—the thicker the better so they do not touch—cover the whole with a light of glass, and keep the sand thoroughly moist, tolerably warm—say at a temperature of about 60° Fahrenheit—and shaded, and they will root nicely. When they have made roots half an inch in length, put them in a rich, light, friable soil, say $\frac{1}{4}$ sharp sand, $\frac{1}{2}$ good garden soil, and $\frac{1}{4}$ thoroughly rotted leaf mold, well sifted together; or, if intended for the border, place them there directly, water at the roots, draw dry earth over the watering, and shade them for a few days.

But it is of raising them from seed that we wish more particularly to speak now. The seed should be sown immediately—the middle of August is preferable—on a rich, well drained border; water and sift over them one-quarter inch of friable soil. If the soil is not rich, it must be made so, and if sandy, well rotted cow manure should be added to make the soil pretty firm. As soon as the plants have made three or four leaves, transplant to ten or twelve inches apart, leaving enough in the original bed, to stand this distance from each other. As soon as the winter sets in cover with an inch of leaf mold, and over all a good mulch of coarse litter. In the spring remove the cover of mulch, and the plants will spring through the leaf mold, and bloom throughout the season. In September cut them down to within 1½ inches or two inches of the ground, and treat them as in the previous fall, saving cuttings of choice varieties for propagating, if you like. By buying choice seed you may get many fine varieties.

A watering of dilute liquid manure water, occasionally during summer, will increase the bloom wonderfully.

If you can not sow during the summer, then prepare a rough frame early in the spring, say the middle of March, to be covered with glass. This is called a cold frame, since no manure is used for bottom heat. In the bed so prepared, sow the seeds pretty thin, in drills four inches apart, and transplant as before directed. Thus you may get bloom about the last of June or first of July, and thenceforward through the season. In winter protect as directed above, and you will have a mass of bloom that will give the greatest satisfaction.

The same plan may be pursued with scented Violets. We have received no more satisfaction all summer than from a bed of Pansies and Violets so treated, unless it may have been from a bed of Monthly Roses, that were heeled in last fall in a cold frame, protected from hard frost, and transplanted to the border this spring. If we only come to appreciate how little trouble it is to have flowers of the easier grown sorts we will then come also to appreciate their beauty more and more. No homestead should be without these most lovely of God's vegetable gifts to man.

THE COLOR AND FRAGRANCE OF FLOWERS.

The chemical transformation in the bodies of living plants, by which the most manifold and brilliant colors are produced, are almost entirely unknown to us. We see a flower pass through the entire scale of red, from the softest pink to the darkest purple-brown; but can give no explanation whatever of the mysterious process. We know, for instance, that the light of the sun greatly influences the color of living plants,

and experience has taught us, that in most cases, its total exclusion is equivalent to the absence of every color; in other words, that it produces white leaves and blossoms. However, this rule is by no means without exception, as many roots, the roots of *Alcanna*, for instance, although buried in the soil, and completely secluded from the rays of the sun, possess a strong and vivid color. We can explain neither the rule nor the exception; on the contrary, we know that, as far as lifeless matter is concerned, mineral or vegetable colors are weakened, and gradually destroyed, rather than enhanced, by the action of the light. Our ignorance in this respect restricts our influence upon the coloration of flowers and blossoms to a very modest and merely empirical one. A mere chance has led to the discovery that the infusion of sulphates of iron into the soil darkens the hue of certain plants which contain a considerable quantity of tannin; and the gardeners have profited by this discovery for the culture of the *hortensia*. But these examples are rare; and as yet we must renounce all claim to the control and influence of the natural course of things in this field. We may be able to change the color of a plant or flower by transferring it into another soil, but we are never sure of the result, and can not give any scientific explanation of it.

The fragrance of a flower is likewise produced by chemical action which has hitherto escaped our closest investigations; we see the result; we see that a flower, like the bee which transforms pollen into honey and wax, fabricates volatile oils out of air, water, and light; but the chemical process itself is a complete mystery to us. We only know that the slowness or rapidity of the evaporation of these oils is the cause of

the stronger or weaker odor of the flower. The mode of their formation is a good example of the unlimited variability and manifold variety of vegetation's chemical powers. Many plants do not limit themselves to the formation of a certain volatile oil in their blossom or flowers, but produce, at the same time, various kinds of oils in their different parts. The Orange tree, for instance, produces volatile oils in the leaves, flowers, and the rind of its fruit. A close investigation convinces us that these differ, not only in their smell and taste, but also in their weight, density, and other physical and chemical qualities; that, in short, they are different and independent substances which can not be mistaken for each other. The same plant must therefore possess three different organisms, by which it generates three entirely different substances out of the same ingredients. What chemical laboratory, be it ever so well furnished and skillfully managed, can boast of results in any respect so wonderful?—*Professor August Vogel, in the International Review.*

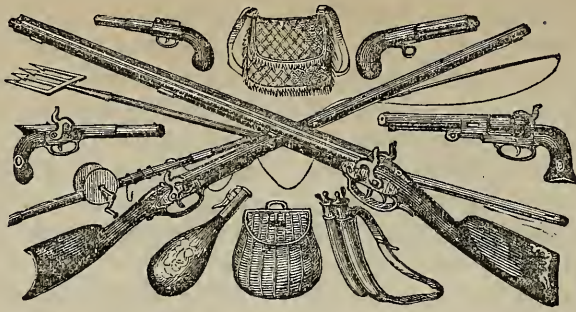
THE ORIENTAL PLANE TREE.

A correspondent, in an article in the *Country Gentleman*, calls attention to the Oriental Plane tree, and has these good words to say for it: "The Oriental Plane tree is very commonly used in the towns and villages of Switzerland, Germany, and France as a shade tree along the avenues, and very picturesque it is with its white, mottled, peeling bark, so striking in winter, and the broad, almost flattened mass of leafage born in the summer. A prominent characteristic of the tree is massiveness. The immense leaves have an almost tropical air, and thoroughly as-

sert themselves in any landscape. On the foliage is a dull, dark green that contrasts strongly with the lighter, more shining qualities of the tulip and other trees, and the motion created among the leaves by light breezes commences much more slowly, and has not the lively character of many other species.

"The motion and sound made by trees in the wind is peculiar, and suggestive of individual character. We learn to know trees more intimately by these simple indications of character, and find the shade of one tree very different in delightfulness from that of another. The Oriental Plane tree does not, owing to some peculiarity of structure, or set of the leaves, afford the pleasant shade of the Beech, but, in very many ways, its qualities are both agreeable and practical. Unlike the Tulip, the bare, fleshy roots of which often transplant so badly, it moves readily, both in fall and spring, grows rapidly, and seems, as far as we have observed, free from disease.

"An unjust prejudice may have worked, more or less, against the Oriental Plane by confusing it with the American Plane (*Platanus occidentalis*), a tree vastly inferior in outline, durability, and health. The Oriental Plane tree is entirely hardy, and, as already suggested, quite valuable to the landscape gardener for the creation of his larger and more prominent effects. Our list of popular shade trees is too limited. Everywhere we see little else but Maples and Elms. A very agreeable variation of this sameness might be made by more extended employment of this well tried Plane tree, and the diversity of effect accomplished would prove perhaps a stimulant to the taste for larger collections of fine oriental trees."



Boat and Gun.

LAKE CHABOT HATCHERY.

Along with Alexander Weed, one of the Executive Committee of the Sportsman's Club of California, a visit was recently paid to the Fish Hatching Works, near San Leandro. The Club procured some time ago from the Government Hatchery on the McCloud River 250,000 salmon eggs, and these are now being hatched out for stocking Lake Merced. The eggs were secured on the 17th of October, the spawn having been taken from the fish thirteen days prior to that date. They were transported in tanks to the works near Lake Chabot, above San Leandro, where all the apparatus formerly used at Berkeley had been sent. The eggs then were about the size of an ordinary pea, but transparent so the eye of the fish could be seen through the shell. Since that time the eggs have been constantly watched by John Fitzpatrick, who has charge of the hatching works, and Smith Glanville, Superintendent of the Sportsman's Club. Great care has been bestowed to keep the water always at an even and proper temperature, and shield the eggs from light. At this time the young salmon — and there seems to be a million of them — are very busily darting around hither and thither, though each one has the shell

which resembles a pouch, or capsule, attached to the belly, and while this is visible the minnow is too young to eat food. The fish generally comes out of the egg head foremost. Forty days after they are hatched, they become large enough to eat food, and then are fed on sour milk and grated liver. They are then taken out of the hatching troughs and put in the nursery boxes, which are deeper and contain more water than the troughs, where they are kept and fed for six weeks. At the expiration of this time they are strong enough to take care of themselves, hence they are put in the lakes or streams to hunt their own food and earn their own living.

It is roughly estimated that ninety per cent. of the young fish obtain full growth by the artificial process of hatching, while by the natural process about ninety-five per cent. are destroyed when young by freshets, water-fowl, and larger fish. It requires the constant attention of the men in charge of the Chabot Hatchery to keep the rats and birds away from the exposed boxes where Chabot has about 25,000 red-sided trout from one to four inches long. In spite of the greatest vigilance, the birds will grab a fish out of the water every now and then. To keep the rats away, the nurseries have to be covered with boards. The rats will go to the bottom of the boxes, two feet under

water, and catch fish. This season Fitzpatrick has caught six rats in steel traps fastened to the bottom of the boxes, fully two feet below the surface of the water. The fish are crowded together so densely that a rodent making a dive at random would be sure of catching a plump trout. An interesting sight is to watch the feeding of the finny youngsters. They will swarm about the feeder and eat with the avidity of a hog, each one darting with lightning rapidity after the finely chopped pieces of liver.

These red-sided trout come from the McCloud River, and seem to thrive remarkably well when transplanted to our lakes. It has been demonstrated that salmon will do well exclusively in fresh water, so the placing of 250,000 in Lake Merced is no experiment. A salmon in fresh water does not attain as great a size as he would in salt water, but he is a better fish for the table.

The Sportsman's Club, which embraces in its membership many of the most worthy and influential citizens of San Francisco, is making extensive preparations for fish hatching next season. Up to this time the best results have attended its labors. At least five tons of trout have been taken from San Andreas this year. By proper observance of the law protecting the fish, the supply can be rendered inexhaustible.

CAPTURE OF A BLACK BASS.

I promised Mr. McGrath that I would observe his instructions carefully, and that gentleman, after placing the rods, live-bait bucket, luncheon-basket, and other articles on board, took his seat in the bow, and we proceeded. We had two boats for my companion and myself, and an experienced man in each. Mr. McGrath had fallen to my lot, and

my companion had a darkey named Pete. We were to go up the Canal some four miles, and then, launching the boats into the river, were to fish slowly down with the current. We had a horse and tow-rope, and a small boy, mounted on the animal, started off at a smart trot. It was quite exhilarating, and the boats dashed along merrily at a capital rate. A gray mist hung low on the river, and thin wraiths of it rose off the water of the canal and crept up the mountain-side, shrouding the black pines, and hiding the summit from view. Beyond, the tops of the hills on the Virginia shore were beginning to blush as they caught the first rays of sunrise, and the fish-hawk's puny scream echoed from the islands in the stream. It was a lovely morning, and promised a day, as Mr. McGrath observed, on which some elegant fish should die. After a few delays at locks, in which canal-boats took precedence of us, we reached our point of transshipment, hauled the boats out on the bank, and our horse drew them sleigh-fashion across field and down to and out into the water.

I had a light split bamboo rod, a good silk line, and a fair assortment of flies. Mr. McGrath had a common bamboo cane, a battered old reel, and the value of his outfit might be generously estimated at half a dollar. In his live-bait bucket were about a hundred fish, varying in length from two to six inches. He did not prepare to fish himself, but was watching me with the deepest attention. He held the boat across the stream toward the opposite shore, and by the time we dropped down on a large flat rock I was ready. I got out, and there being a pleasant air stirring, I made my casts with a great deal of ease and comfort. There was a deep hole below the rocks,

bordered on both sides by a swift ripple—as pretty a spot as ever a fly was thrown over. I sped them over it in all directions, casting fifty and sixty feet of line, and admiring the soft flutter with which they dropped on the edge of the ripple or the open water. Mr. McGrath was surveying the operation critically, nodding his head in approval from side to side, and uttering short ejaculations of the most flattering nature. I kept whipping the stream assiduously, so satisfied with my work and the style of it as to feel confident that no well-regulated fish could resist it. But there was no appearance of a rise; not a sign appeared on the water to show even the approach of a speculative fish. I was about to note the fact to Mr. McGrath, when that gentleman remarked: “Begorra! but it’s illigant sport it’d be if the bass ’ud only bite at them things!”

“Bite at them?” said I, turning round; “of course they’ll bite at them.”

“Sorra bit will they, sorr. It’s just wondherin’ they are if them things up above is good to ate, but they’re too lazy to step up an’ inquire. Augh, be me sowl! but it’s the thruth I tell you. Now, if it was a dacent throut that were there, he’d be afther acceptin’ yer invite in a minit; but them bass—begorra! they’re not amaynable to the fly at all.”

Now, if there is anything that I have been brought up to despise, it is fishing with “bait.” Fly-fishing I have learned to regard as the only legitimate method of taking any fish that any sportsman ought to fish for, and fishing with a worm and a cork I always looked upon as equal to shooting a partridge on the ground in May. I did not believe Mr. McGrath, and I told him, as I resumed my graceful occupation, that I didn’t think there were any

fish there to catch. The idea of their rejecting flies served up as mine were was too preposterous.

“Well,” said he, “ye may be right, sorr; there may be none there at all; but I’ll thry them wid a bait, anyhow.”

In another minute Mr. McGrath was slashing about right and left a bait which to my disordered vision looked as big as a Yarmouth bloater. He threw it in every direction with great vigor and precision, and, as I could not help noticing, with very little splashing. I turned away with emotion, and continued my fly-fishing. Presently I heard an exclamation from Mr. McGrath, quickly succeeded by an ominous whirring of his reel.

“Luk at the vagabone, sorr! luk at him now! Run, ye divil ye! run!” he cried, as he facilitated the departure of the line. “Bedad! he’s a fine mikrophtheros! Whisht! he’s stopped. Take that, ye spalpeen, ye!”

As he said this he gave his rod a strong jerk, that brought the line up with a “zip” out of the water in a long ridge, and the old bamboo cane bent until it cracked. At the same moment, about a hundred and fifty feet away, a splendid fish leaped high and clear out of the water with the line dangling from his mouth. Mr. McGrath had struck him fairly, and away he went across stream as hard as he could tear.

“Take the rod, sorr, while I get the landing-net. Kape a tight line on him, sorr; niver let him deludher ye. It’s an illigant mikrophtheros he is, sure!”

He returned from the boat in a moment with the landing-net, but absolutely refused to take back the rod. “Sorra bit, sorr; bring him in. It’s great fun ye’ll have wid the vagabone in that current! No, sorr; bring him in yerself, sorr; ye’ll niver lay it at my

door that the first fish hooked wasn't brought in."

I didn't need any instructions, and as the fish ran for a rock some distance off, I brought him up sharply, and he jumped again as wickedly as he could full three feet out of the water, and came straight toward us with a rush. It was no use trying, I couldn't reel up quick enough, and he was under the eddy at our feet before I had one-third of the line in. Fortunately, he was securely hooked, and there was no drop out from the slacking of the line. He was in about twelve feet of water, and as I brought the line taut on him again he went off down stream as fast as ever. I had the current full against him this time, and I brought him steadily up through it, and held him well in hand. I swept him around in front of Mr. McGrath's landing-net, but he shied off so quickly that I thought he would break the line. Away down he went as stiffly and stubbornly as possible, and there he lodged, rubbing his nose against a rock and trying to get rid of the hook. Half a dozen times I dislodged him and brought him up, but he was so wild and strong I did not dare to force him in. At last he made a dash for the ripple, and I gave him a quick turn, and as he struck out of it, Mr. McGrath had his landing-net under him in a twinkling, and he was out kicking on the rock. He weighed four pounds six ounces, and furnished conclusive evidence that a bass of that weight can give a great deal of very agreeable trouble before he will consent to leave his element.

FISHING AT ESTES PARK, COLORADO TERRITORY.

Ruffianism is dying out in the West, and the traveler will have but little chance of seeing the scenes which we

did, not so very long ago—scenes and deeds too atrocious and iniquitous to be published at length. Instead of ruffianism, if you go to Estes Park in the summer, you will find a most curious and pleasant, even Arcadian state of society. From the great central manufacturing towns on the dry, dull plains, and from the hard-baked, wearisome farms down below, come innumerable parties, with their tented wagons, their prairie schooner, with wife and children, and camp out for weeks together in the most paradisaical simplicity, and fish, and flirt, and wander happily through the long, bright summer days. What fishing they get! The supply seems to be absolutely inexhaustible, and we fancy practically so, the breeding grounds being so infinite, and the feed so plentiful.

The great food for the trout is the grasshopper, which replaces the May fly in England; and if you like to take the trouble to catch a lot, you will find them a most deadly bait, particularly for big fish. The native way of carrying them (a hint for our bait fishermen) is to spit them on a needle and thread, and take them off one by one as wanted, which seems rather rough on the hopper; but what can you do with a beast which takes an infinite trouble to catch, and then jumps wholesale out of the bottle the moment you draw the cork. For our part, we always caught more fish than we could possibly want with the fly.

In the early part of the season Scotch May flies did admirably, particularly those dressed with orange and red bodies, and mallard or teal wings. Of course, as the season goes on, and the water fires, you will find it answer to diminish the size of your flies. I got a wrinkle once up there from an Hiberno-American, worth practicing: instead of

keeping his flies on the top of the water as we should, he let them sink, working them and jerking them sideways, as if he were spinning a minnow. We must confess that his triumphant exclamation, "that he had got away with the boys," was true, for he killed more trout than any one else. My only consolation was that he confessed that he had learned his art

In Ireland, far beyond the sea.

Pushing across some of the meadows, you will constantly feel the big trout rushing about between your ankles in places where you would never dream of finding a fish; and if you look down the overflow of some of the beaver dams, you may see trout enough to fill a casting net to breaking at every throw. Oddly enough we found the trout in this situation were rarely strongly on the feed, and we sometimes imagined that they were ambitiously playing at salmon, and thinking it a point of honor to surmount the tiny fall.

One of the many charms of our beloved park is that you are by no means dependent on the

"South season, that bud and bloom forth bring," when the

"Fishes flete with new repayred scale,"

for a pleasant day's fishing. In the harvest frost of winter, take your horse, rifle, axe, and a couple of blankets, with a hook and line in your cap, and ride up and along to the hard-frozen headwaters among the hills, and, choosing a spot that looks likely, and a bit sheltered by a tuft of willow, warm your blood by hewing a hole through the foot-thick ice, and fastening a foot link to a willow spray, bait with a bit of fresh meat or a ligniperdous maggot got from a rotten tree, and angle through it. It sounds mild, but we really think it is quite as good fun as any bottom

fishing can be—aye, and better, too, when the wind does not blow. Remember that when you get hold of a big one the play is very exciting, and it requires no little nicety to extract him through the ice-hole, like a cork from the wrong side of a soda-water bottle. We deem it mighty pretty sport, and the crimson-vested one never looks more beautiful than he does on a film of blue ice, half covered with powdery snow. Would that Mr. Brookes might see him and paint him! Also another picture might he do, looking through the ice-hole, with the right light, down into that mass of wagging tails and waving fins, and goggle eyes staring up at you, and mouths eager for air and food—worth seeing, indeed, sir!

If you find the take slackening, or the strong symptom of general freezing setting in, seize your axe and chop away till

"The snow dust rises behind you,
And the ice-rock splinters fly,"

and begin again. Of course you may dress as warm as you like for this peculiar kind of sport; but, as a rule, no sane man would try it without a calm day and a bright sun. You need really take no particular precautions. If you get short of bait, use the eyes of the caught—we know no better. And when your line gets unworkable with incrustated ice, roll it up and down under your foot, and you will soon restore it to a decent size. Never go a-fishing or anything else without having your rifle within reach. One of the best bits of sport with big horns we can remember was got while coming home from ice-fishing in the upper park.

PEARL FISHING IN TORRES STRAITS.

In the first chapter I described the peculiarities of the sucker. The fish is something of the shark species, and

when it can get a sufficiency, it appears to live principally on turtles. The method suckers adopt in killing the turtle is simply to fasten on with the sucker at the back of their head to any part of the turtle they can get hold of, and then placidly hang on while the unfortunate prey rushes through the water at a frantic pace hither and thither, until it becomes quite exhausted. Then the sucker quietly lets go, and commences his meal at leisure.

I have caught a sucker now and again with an ordinary fishing line, but this is a slow process in comparison to that I adopted when I went at it in earnest. I used to attach a long line to a turtle shell, and let it float away from the side of the boat, when in a very short time, one, two, three, and sometimes as many as five or six suckers would adhere to the shell, and allow themselves to be pulled on board the boat. One afternoon we caught a great number by this means. We had a large iron tank in the boat full of sea water into which we put their suckerships as we disconnected them—no easy matter I can tell you—from the shell. When we had caught sufficient for our purpose, we tied strong snapper lines to the tails of six of the suckers, and let them over the side of the boat. They darted off in different directions as far as we would let them go. These lines we had fastened to the seats and other convenient parts of the boat, each one of us having two lines to attend to. In a very short time there would be a strong tug at one or more of the lines, which would be seen whizzing about, and then began the work of hauling in the turtle. If the sucker had got hold, there was no fear of losing the fish, unless the tackle gave way. The sucker's grip is much more certain than a fish-hook. The singular part in catch-

ing turtle in this way is, that although the sucker is so tenacious in sticking to the empty shell and to the live turtle while you get him to the side of the boat, directly you turn the turtle on his back the sucker leaves go and darts off in quest of fresh prey.

At times when one of our suckers fastened on to a very large turtle we had all our work to capture him. These suckers take very kindly to the operation of being tethered by the tail. I have had them tethered in this way for days, and they seem to feed about the bottom quite unconcernedly, but let a turtle show his figure within reach of their line, and he is bound to be "had." I have often thought the name Torres should be changed for Turtle Straits. I do not think there is any place in the world where the turtle is so plentiful at times as in the Straits off Cape York, and all among the islands in the vicinity. These waters are regularly teeming with them.

In about an hour we had half filled the boat with turtle with the aid of our suckers, and as we had done with their services for the time, the lines were unfastened and the fish we had had at work, in addition to those kept in the tub as a "reserve," were let loose in their native element, to do duty on a future occasion if required, and we fell across them.

As we had caught all the turtles we required, I put on the diving dress and went down below to fish. It may seem a queer idea to the ordinary fisherman to talk of going "below" to angle, but the method is both amusing and expeditious if you have the appliances to put it in practice. I selected a piece of snapper line about twenty feet long, noosing on a large size jewfish hook, having no sinker. For bait I cut up part of a small turtle, and thus equip-

ped descended and commenced angling. We were anchored in about nine fathoms, and about forty yards from a small reef of rocks. The current was very slight, but sufficient to run my short line to its extreme limit. It was very singular to see how quickly the fish gathered round from all quarters when the baited line stretched out, although not one was in sight before. In a moment one of their number seized the bait, and as a matter of course was hooked, for in this way of fishing you can see all that is going on, and know exactly when to "tug," and feel as certain of your fish as the Arab of his wild colt when lassoed.

I had a capital afternoon's sport, catching as many fish as all hands could consume for some days. One peculiarity in connection with this under-the-water fishing is, that for every fish I caught with the line I caught one with my hand. The way this is done is very simple. As soon as I hooked a fish his companions would keep round him as I gently hauled him toward me, and when within reach I seized one of the number of followers with my right hand between the two eyes, and so skillful had I become in the feat by practice that I seldom failed. This mode of fishing, however, is attended with danger, even with the diving dress on, if you are in deep water, and the fish you hook bleed freely. The sharks either smell or see blood a long distance, and there is no keeping them off when they get on its trail.

I caught about five different varieties of fish, comprising polyneme (a sort of perch), rock-cod, bream, "tailor," and king. While in the north I caught a great many fish that I had never seen before nor since. The variety of sharks is almost endless, some of them attaining an incredible size, and possessing

a most voracious appetite for anything that comes in their way. To give the reader an idea of the miscellaneous diet these monsters indulge in, I will enumerate the various articles I was told (but do not vouch for the truth), were taken from one of their stomachs. He measured seventeen feet from the point of the nose to the tail. When the stomach was laid bare it presented a queer sight; there were two links of a large anchor chain, an eleven-pound circular salmon tin, a lady's brooch of large size, with likeness in centre, but defaced, several crabs and a singular-looking crawfish, twenty-nine human bones belonging to different parts of the body, one hundred and four mussels, a dugong's tail, three old boots and a slipper, a lump of coral, the skull of a good-sized sheep, seventy-six nails, assorted, and all very rusty; a sheet of brown paper, crumpled up; a one-ounce vial, label destroyed; a lot of marine herbage, ten pieces of rope, varying in length from six inches to four feet; twenty-three corks, some whole, some broken; a small Wesleyan hymn-book, wanting one side cover, and several leaves; forty-seven small fish, a piece of canvas, the arm of an old coat, thirteen buttons, assorted; and a lump of salt pork, which had formed part of the bait with which he was caught. In addition to these articles there were several pieces of oyster and other shells. The quantity of oil that can be extracted from the liver of a shark of the size of the foregoing is very great, and is largely used north for all sorts of purposes. It is specially good for sprains, etc.

Great Britain now cultivates nearly one million fewer acres of wheat than she did twenty years ago.

THE POTATO BLIGHT, ETC.

E. H. Cheney, of Smith's Ranch, Sonoma County, in a district which has been severely tried by the Potato blight, writes thus to the *Rural Press*: Convinced in my own mind that long-continued planting of the same variety of seed in the same soil, without change, impairs its vitality, I imported a quantity from the East, of different varieties for last year's planting. This year I discarded altogether the red potato, pink eye, and peach blow, and planted the following varieties: Late rose, snowflake, Brownell's beauties, English whites, and peerless, in land that two years ago was planted with reds which were so blighted that they were unfit for food, and this year I have no sign of blight, and my potatoes are unsurpassed in quality, while my neighbors, adjoining, who planted the old varieties, have their potatoes badly blighted.

The English have tried new varieties without success, but they regard the Late Rose as the least liable to attack. The London *Gardener's Chronicle*, good authority, says: Small potatoes are rarely affected with the disease; it is less destructive in poor soil; it is less destructive in a light, dry, gravelly soil, but is worse in soil that is moist and retentive, or where there is an abundance of rich manures. Small Potatoes, or those grown on poor land that is dry and porous, and where there is no contact with manure, are ever the most mealy and nutritious and best adapted for food.

At a late meeting of the San Francisco Microscopical Society, Justin T. Moore, a careful and experienced observer, reported that he had found two edible fungi—the *Agaricus nemorosus* and the *Tremella frondosa*. The former

grows on rocky hill-sides in the sage brush country; the home of the latter is not described, but is probably in the coast districts of California. It is possible that both would pay for cultivation.

A patch of dhourra, or Egyptian Corn, seventy feet square, planted near Cloverdale last spring by G. Hunziker, yielded 920 pounds of seed, and a ton of good fodder. The space was one-ninth of an acre, and the yield at the rate of 130 bushels of seed to the acre. Egypt's crop of dhourra amounts to 50,000,000 bushels.

The rain in the Sierra Nevada has been sufficient to give a considerable supply of water to the ditches, and to start many of the hydraulic mines, after they had lain idle for five or six months. —*Alta*.

BAMIA COTTON, LIBERIAN COFFEE, ETC.

Two important additions have lately been made to the list of cultivated plants, the Bamia cotton and the Liberian coffee, but it is doubtful whether either will be extensively cultivated in California. The Bamia cotton is a new variety discovered in Egypt four years ago. It yields three times as much as any other kind, has a good fibre, and its cultivation is limited now only by the supply of seed which commands a high price. If the claims generally made for it by cotton growers who have tried it, should be verified by general experience, it will within ten years supersede every other variety.

The Liberian coffee yields ten times as much to the acre as does the Arabian, and, beside its flavor, is so decidedly superior that it will be worth twice as much by the pound. Large as these figures are, they have been accepted as correct by respectable authorities.

According to a report recently made by a Committee of the Los Angeles Horticultural Society, the Citrus family of trees (Oranges, Lemons, Limes and Citrons) in Southern California have no diseases save such as can be overcome by proper cultivation and care. The gum or root disease is chargeable to "excessive irrigation and bad cultivation," and sometimes to the application of strong manures immediately to the root. If the tree is badly diseased, it should be dug up; if slightly, the affected part may be cut out and covered with shellac. The brown scale-bug is disappearing with careful cultivation. The red scale-bug spreads slowly, and is easily exterminated. The majority of the Committee recommend pruning Oranges high, so as to plough under the lowest branches, and the tops should be trimmed so as to leave a free circulation of light and air. The Committee recommend budded trees in preference to seedlings, and the Orange-root as the stock upon which to bud, in preference to the Lime-root or the Chinese Lemon. The names of Thomas Garey and J. D. Shorb among the Committee give assurance that the opinions of the report are not formed without experience or capacity.

The Mezquite grass has been tried in Humboldt County, where, indeed, it is the only grass that has been sown extensively, but it does not give satisfaction. It spreads rapidly and grows vigorously in the winter and spring, but it affords pasture for only a brief period and gives an unpleasant flavor to milk and butter. A local paper, the *Standard*, recommends as preferable, red clover, which would doubtless thrive there if anywhere in the State, without irrigation; the rains being more abundant than in the interior and southern districts.—*Alta California*.

Editorial Portfolio.

OUR FRONTISPIECE.

THE PHLOX AND THE PANSY.

For our colored plate of this number we have chosen two of the most popular flowers, one a native of our own country, the other of Europe and America, and both prized by the lovers of flowers in every quarter of the civilized world.

The Phlox *Drummondii* was only discovered about forty years ago, in Texas, by Mr. Drummond, a botanical collector sent out by the Glasgow Botanical Society, and it was one of the last plants sent home, for soon after he visited Cuba and died. Sir W. J. Hooker named this species *Drummondii*, "that it may serve as a frequent memento of its unfortunate discoverer." The word Phlox signifies *flame*, and is applied to this genus in allusion to the flame-like form of the buds, as shown in the engraving. The Phlox has undergone constant improvement since its discovery, and the plates of this flower published even twenty-five years ago bear but little resemblance to the beautiful and almost perfect flowers that we now possess. The latest improvement is the *P. grandiflora*, shown in our colored plate. The flowers are large, colors good, form perfect, but it is not as free a bloomer as the old kinds, and not so desirable for forming a mass of colors, like a ribbon bed.

No annual excels the Phlox for a brilliant and constant display. Indeed, if confined to one plant for the decoration of the lawn or border, it would be difficult to find one more desirable than this. The colors range from the purest white to the deepest crimson, including purple and striped,

the clear eye of the Phlox being peculiarly marked. There is a yellow variety, but the color is not very clear. Seed may be sown in the open ground in May, or in a cold-frame or hot-bed earlier in the season; and in either case, from June, during the whole summer and autumn, they make a brilliant bed of showy yet delicate flowers.

In a rich soil, the plants will grow more than eighteen inches in height, but as there is not sufficient strength in the main stem, they will not stand entirely erect; a foot apart is about near enough to set them, unless the soil is very poor. If planted too close they suffer from mildew. There is no difficulty in obtaining new varieties of the Phlox, but those we now possess are so good it is not easy to obtain better.

The little *Heartsease*, or wild *Three Colored Violet*, bears so little resemblance to the magnificent flowers we call *Pansies* that at first sight there would seem to be no connection between the two, and no one but a botanist, or one acquainted with its history, would believe such a beautiful child belonged to so humble a parent. Few flowers show in such a wonderful manner the effects of care and culture. For many years back the *Heartsease* was cultivated in the garden, but was not considered worthy the attention of florists. About sixty years ago, a very young English lady, living on the bank of the Thames, had a little flower garden of her own in her father's grounds, and one bed that was heart-shaped, she filled with *Pansies*, wisely selecting the finest plants from the other grounds to supply her own little bed. Her father's gardener, a Mr. Richardson, seeing the interest she took in the *Pansy*, began to partake of the same feeling, and grew plants from seeds of the choicest

specimens. Very soon the little heart-shaped bed attracted the attention of professional florists, and speedily the *Pansy* became a popular florist's flower. The *Pansy* gives abundance of bloom until after severe frosts, enduring our hard winters with safety, and greeting us in the earliest spring with a profusion of bright blossoms. It will flower better in the middle of the summer, if planted where it is somewhat shaded from the hot sun, and especially if furnished with a good supply of water, but in almost any situation will give fine flowers in the spring and autumn. If plants come into flower in the heat of summer the flowers will be small at first; but as the weather becomes cooler, they will increase in size and beauty. Often plants that produce flowers two and a half inches in diameter during the cool, showery weather of spring, will give only the smallest possible specimens during the dry weather of summer. To have good flowers, the plant must be vigorous, and make a rapid growth. No flower is more easily ruined by ill treatment or adverse circumstances. Seed may be sown in the hot-bed or open ground. If young plants are grown in the autumn, and kept in a frame during the winter, they will be ready to set out very early in the spring, and give flowers until hot weather. If seed is sown in the spring, get it in as early as possible, so as to have plants ready to flower during the spring rains. Seed sown in a cool, shady place, and well watered until up, will make plants for autumn flowering. The *Pansies* make a beautiful bed, and are interesting as individual flowers. No flower is so companionable and life-like. It requires no very great stretch of the imagination to cause one to believe that they see and move, and acknowledge

our admiration in a very pretty, knowing way. The Pansy is peculiarly adapted for flowering in the South during the cool, moist winter weather, and the finest and largest flowers we have ever seen were grown in our Southern States.—*Vick's Monthly Magazine*.

JAPAN PERSIMMON.

We observe in that valuable paper for farmers and gardeners—the *Rural New Yorker*—the following remarks on the Japan Persimmon: “This was sent to this country by Mr. Thos. Hogg about ten years ago, and is now offered by nurserymen East as well as West, though in this climate it will not stand our severest winters, a fact not so much to be regretted, on account of the astringency of the fruit.” We would remark on the above, that the fruit of the best kinds of the Japanese Persimmon is not at all astringent when quite ripe, like the sorts which abound in some of our Western States—Virginia and Kentucky, for instance—but the flavor of the large Japanese varieties, either oval or round in shape, when mature, is simply delicious beyond imagination, as we had lately an opportunity of testing from a portion of a specimen presented to us by Mr. Loomis (importer of the trees here), at the seed store of Mr. Trumbull, on Sansome Street. We can truthfully assert, then, with the like opinion of the *Pacific Rural Press* of this city, from this experience, that “the praise bestowed upon this fruit by those who have visited Japan is not beyond the merits of the fruit.” With a little sugar and cream the luscious pulp of these most valuable varieties of the *Diospyros* would probably be considered as delicious as the Strawberry with the same accompaniments which usually attend the latter. A

large number of the trees of these best and grafted sorts of the Japanese Persimmon were planted in this State last spring, and the proprietor, Mr. Loomis, will offer for sale this spring many more of the finest kinds, at Mr. Trumbull's floral and fruit establishment. The large and rotund orange-colored specimen which we tasted, as well as the editor of the *Pacific Rural Press*, was grown with several others by Col. Hollister of Santa Barbara.

The wood of this Persimmon, a species of Ebony, is handsomely striped and marked, and in Japan is made into many ornamental things. We saw several beautiful pieces of this wood at Mr. Trumbull's. The hardness of it is remarkable. The Iron-wood is also one of the species.

By the way, did not the editors of the *Rural New Yorker*, in answer to Mr. Marti, mean, instead of *Mespilus* (*Cratægus*) *prunifolia*, some species of the *Diospyros*, as *Mespilus* relates to the Medlar?

VISIT TO BERKELEY.

On one of our finest autumn days, we lately passed over our beautiful bay, and by train through Oakland to Berkeley, the handsome village adjoining the splendid site of our State University. Here we called on Professor Hilgard, at the head of the department of Agriculture at the College. As one of the Committee on Agriculture and Horticulture on the Commission of the Paris Exhibition of 1878, we had the pleasure of conferring with him, as chairman, upon the subject of presenting at Paris a description, by glass tubes, maps, and pamphlets, of the important soil varieties, productions, resources, and climate of our State generally, and the inducements of so many kinds

which it offers to immigrants from Europe. After which, and receiving the kind hospitalities of his family, at his residence commanding a lovely view of the bay, its islands, surrounding hills and mountains, the entrance of the Golden Gate, and a portion of our Pacific metropolis, Oakland, etc., the Professor showed us his small garden embellished with many splendid specimens of Double Geraniums in full bloom, and many other choice flowers and plants, with a portion of the back part of the lot planted with some choice varieties of stone and small fruits, not omitting the best vegetables. Attached to the Professor's stable is a dry earth closet, which, with a convenient and simple apparatus for its supply of earth and outlet for the deposits, enables him, with the aid of his stable manure and liquid drainings from his kitchen, to form an abundant compost heap for the enrichment of his garden. By the mingling of lime, also, with the original adobe soil of the locality, and thorough mechanical cultivation, he is enabled to bring his land into a state of great richness, and in a sufficiently fertile condition for the healthy and luxuriant growth of all his trees, plants, shrubs, flowers, and vegetables. Not having very good facilities for irrigation, but merely the waste water from his house conducted by ingeniously arranged pipes, he is not able to possess a grass plot or small lawn in front of his dwelling, so as to keep it in a vividly green state all the year round, but by means of the attractive and brilliantly-colored varieties of the Coleus and other splendidly tinted flowers, with some prominent and handsome plants in the centre, he intends to form a very prominently elegant parterre of floral attractions. Before taking leave, we had the gratification of inspecting

the agricultural and chemical laboratory connected with that department of the University, and observed several original inventions of the Professor for the analyzation of and mechanical preparation and hydraulic soluble separation of soils. We likewise inspected three plots of ground of very deep, moderately deep, and shallow preparations of the soil, to demonstrate their effects on grain cultivation. After the first rains the wheat on the shallowest worked land made the best growth, owing, of course, to its receiving the greatest quantity of moisture in the smallest surface or capacity. The deepest prepared lot showed the smallest growth, on account of the water sinking deeply, and the grain not receiving so much moisture, owing to its dissipation into a larger space. The grain on the moderately prepared soil, in regard to depth of cultivation, showed a medium growth between the two plots above described. Future rains if sufficiently liberal, will, no doubt, bring out in the long run, the grain to the largest growth and perfection of ears on these two last plots of ground. It is too late in these days of agricultural and horticultural improvement to hesitate a moment concerning the desirableness in general of deep plowing, subsoiling, and trenching land. That has for some time been proved beyond a question. Before our final departure, we spent a few moments in viewing the greenhouses, nurseries, and orchards of the College. We found all of these in excellent order, under the enlightened management and care of Professor Ellis, the Superintendent.

PUBLICATIONS RECEIVED.

"Vick's Illustrated Monthly Magazine," January, 1878. Published by James Vick, Rochester, N. Y. This

much acceptable periodical, long looked forward to with great pleasure and interest, because we have known by experience from his former works, that the author and editor would implant in it the same valuable instruction, taste, beauty, and neatness which have always distinguished them, has come to hand. It is very handsomely and clearly printed on the best of paper, and is profusely illustrated and embellished with engravings and a splendid and elegant colored plate of groups of the Phlox and Pansy. The price of this useful and inviting magazine is only \$1.25 a year, and where a club of five or more is formed, the cost is only \$1 each. This work will give the lovers of flowers 400 pages in the year, and twelve colored plates. Toward the close of the year neat cloth covers will be prepared for binding the volumes, which will be forwarded by mail at a small cost, so that the numbers can be readily bound in good style by any binder. This January number treats on Making and Beautifying Roads, with illustrations; The Phlox and the Pansy; Botany for Little Folks; Home Correspondence; The Way to Fail; Cheap Greenhouses; Bulbs at the South; Growing Perennials from the Seed; Destruction of Insects; Gladiolus Bulbs; Chinese Primrose; Flowering Sweet Peas; Foreign Notes, embracing the subjects of Bulbs in Holland, Solomon's Seal, Sweet Peas in the Flower Market, Table Bouquets, A Bug Convention, Wild Kale, Floral Decorations, An Horticultural Libel, Moss Roses in Orchards, The Anemone Japonica alba, Worms in Pots, The Tulip Tree, Double Blossomed Cherry, Bird Destroyers, Exhibition of Annuals, Tree Planting in Switzerland. Then there is a large chapter on Pleasant Gossip, including Petunias for Winter

Flowers, Portulaca at the South, Civil Service Reform, New Zealand Lily Bulb, Treatment of Shriveled Lily Bulbs, Chinese Yam, Sweet Alyssum, Caladium, Garden on the House-top, London Pride, Making an Asparagus Bed, No Failure with Seeds, Japan Lilies and Corn, Verbenas from Seed, Hyacinths, Holly Berries, Perennials from Seed, Best Annuals, Flowers among the Farmers, and a host of other useful hints and knowledge connected with horticulture and ornamentation of gardens and houses. We anticipate from this magazine a great deal of pleasure and good to both professional and amateur florists.

"Department of Agriculture," Special Report No. 1. Statement showing the condition and prospects of the Cane Sugar Industry in the United States.

"An Exposition of the Principles of Money, and their Application to a National Currency," published by Roman & Co., Montgomery St., S. F., 1877.

FRUIT CULTIVATION AND REPORT OF FRUIT AND VEGETABLE MARKET.

The history of pomology in California, for a few years past, has been characterized by the introduction of correct views in regard to the cultivation of fruit, and these views may be well referred to as omens of good. Fruit cultivators are beginning to pay more attention than they have hitherto done, to the quality of fruits rather than the quantity, and there is commencing to be shown some determination to discourage the raising of everything that is inferior. In this fact we have an assurance of improvement in those fruits which are ranked in the first class of excellence. On our particular coast, as well as in some of the most western States, the tendency of nearly all fruits

is to become very large, and this result, with too much irrigation in some instances, in a measure diminishes their natural high flavor. If this tendency can be counteracted, we have reason to believe that the flavor and taste will be particularly improved. A vast amount of our fruit is grown in the lowest and richest valleys. This has the effect to increase their size, at the expense of their fine quality and juiciness in some sorts, as in Apples, Peaches, and Plums. The foot-hills are now being found to remedy this fault in a great measure, the same fruits just mentioned being richer in flavor and much more juicy. We have yet a good deal to learn how far the qualities of fruit can be improved by locality and culture. It is easier to produce a growth of large fruit, than to improve its qualities; still, we believe that the latter result is attainable by study and care, and that methods will continually be devised here, which will give a fruit of almost any desirable quality.

To promote results so desirable, it is necessary that a thorough knowledge of the kinds best adapted to our slope should be more widely extended. The American Pomological Society have accomplished much in this way. We have obtained considerable information from practice and experience from the time of our first planting, but our chief authority is the one above named, which has decided accurately what are the varieties of fruits suited best to the various sections of the United States, as well as for California. Many excellent treatises on the subject have been written, and they have had a wide circulation; but there have been, of course, defects in all of them, which has lessened that usefulness they would otherwise have secured.

A few of the best Apples for Califor-

nia are Duchess of Oldenburg, Fall Pippin, Newtown Pippin, Yellow Belle-fleur. And Pears: Bartlett, Beurre Clairgeau, Beurre Hardy, Doyenne d'Alencon, the Duchesse d'Angouleme, Easter Beurre, Flemish Beauty, Seckel, Sterling, Winter Nelis. But there are now several others which experience has found to be suited to our soil and climate.

There are many varieties of both Apples and Pears here which rank only as second rate; they are, however, good for marketing.

During a recent visit which we paid to Professor Hilgard, of the State University, we had an opportunity of observing in his garden the good effects of the application of lime on an adobe soil. The best time for putting lime on such a soil is in the autumn. It should then be applied in a powdered and caustic state, and well incorporated with the spade, plow, and rake, or the harrow. In this case the whole effect of it is secured. Lime has a tendency to sink in the soil, and hence there it will find its way to the roots of fruit trees, or crops of any kind. When used as a top dressing, it should be fully air slaked, or only in its mild form; when thus used it is mainly to supply the trees with a nutriment. In this condition it is remarkably well fitted to fulfill the ends for which it is used. Its extreme fineness, its sparing solubility withal, are qualities which favor this substance especially for adobe lands.

As to the markets: The large supply of Grapes for some time before the middle of last month (November) has led to quite a falling off in the supplies. The quality of the great mass of that healthy fruit has rather deteriorated since that time, but choice kinds still meet with a ready sale. Apples from Oregon have come in in large quanti-

tities for some time past. The prices of Apples and Pears continued unchanged during last month. Consignments of Los Angeles Oranges are beginning to increase. About the 20th of November we observed some good and large Strawberries in fair quantity, also a few Raspberries. We are indebted to Howe & Hall for the following quotations: Apples—Choice, 75c. to \$1.25 per box; common, 50c. to 75c. per box. Quinces, 75c. to \$1 per box. Pears—Winter Nellis, 75c. to \$1 per box; E. Beurre, 75c. per box; cooking, 40c. to 60c. per box. Pomegranates, 6c. to 8c. per lb. Strawberries, \$10 to \$13 per chest. Raspberries, 25c. per basket. Figs, 50c. per box. Oranges—Mexican, \$25 to \$30 per M. Lemons—Malaga, \$12.50 per case. Limes—Mexican, \$12.50 per M; Los Angeles, \$5 to \$10 per M. Bananas, \$2 to \$4 per bunch. Pine Apples, \$8 per doz. Cocoanuts, \$7 to \$8 per 100. Grapes—Muscats, 75c. to \$1.25 per box; Tokay, 65c. to \$1 per box; Black Morocco, \$2 to \$2.50 per box; Alhambra Muscats, \$2 to \$2.50 per box; wine, \$20 to \$22.50 per ton. Dried Fruit—Apples, 4c. to 6c. per lb.; Peaches, 7c. to 8c. per lb.; Pears, 6c. to 8c. per lb.; Plums, 3c. to 4c. per lb.; pitted, 12½c. to 14c. per lb.; Prunes, 12½c. to 15c. per lb.; Figs, white, 6c. to 8c. per lb.; black, 4c. to 7c. per lb.; California Raisins, \$1 to \$2 per box; \$1.25 to \$2.25 per hf box; \$1.50 to \$2.50 per qr box. Vegetables—Cabbages, 87c. to \$1.12½ per ctl.; Tomatoes, 30c. to 60c. per box; Marrowfat Squash, \$6 to \$8 per ton; Green Peas, 5c. to 8c. per lb.; String Beans, 6c. to 8c. per lb.; Chile Peppers, 75c. to \$1 per box; Garlic, 1c. per lb.; Okra, 4c. per lb.; Cauliflower, 75c. to \$1 per dozen; Egg Plant, 75c. to \$1 per box.

About the first of the present

month (December) the glory of the show of many fruits began to wane. Grapes of all sorts were rather less plentiful. Apples, chiefly from Oregon, also decreased, but made a splendid exhibit as to their brilliant coloring. Oranges were on the increase on the stalls, and Strawberries were, for the lateness of the season, fine and of good size, but, of course, their price was increased, and Raspberries were decreasing much in quantity, and their price rose correspondingly. California Raisins, English Walnuts, Limes, Grapes, Pears—chiefly the Winter Nellis, were in free receipt—the supply equal to the demand. Dried fruits, Figs, Raisins, for the most part were of good quality. There was a good stock of Eastern Cranberries. Hungarian Prunes were of good quality, and some other kinds of Prunes were better in delicacy and lusciousness of flavor than usual this season.

THE MEXICAN APPLE.—The *Gardener's Chronicle* places before its readers a life figure of the so-called Mexican Apple (*Casimiroa edulis*.) To look at, it quite resembles an Apple, though more nearly related to an Orange. It is a native of Mexico, where it is found in a wild and cultivated state. It is of a greenish-yellow color when ripe, and has a delicious melting flavor, like that of a Peach.

ALTHOUGH much has been said about the medicinal value of the Eucalyptus leaves, we do not learn that any substance made from them is produced extensively, or has obtained any secure place in the pharmacopœia. The extensive plantations of the Gum tree in our State, and the luxuriance of its growth, would furnish abundant material for the laboratory.

Editorial Gleanings.

ROSE WATER AND ATTAR OF ROSES.

As is generally known, this district is the most fertile in the Turkish Empire for the production of attar of roses; and, as little is known of this interesting and curious process, a few words as to how the roses are grown and how the essence is extracted may be permitted. This district, which is called the district of Kezanlik, produces annually more of the essence than all the other rose-growing districts of Turkey put together. The whole quantity produced in Turkey may be roughly estimated at 3,600 pounds annually, of which 1,800 pounds are manufactured in this district, and the rest in seven other districts, all alike in the Sandjak or province of Philippolis.

The soil best suited for the cultivation of roses is what we find in such large tracts of lands in this neighborhood, namely, sandy slopes with a southern exposure, and the method of planting and rearing is as follows: In spring and autumn parallel trenches a few inches deep are dug in the soil selected about one and a half yards apart and in these trenches are placed short branches taken from an old rose tree. These must not be cut off the old plant, but torn off, so as to carry with them part of the peel or bark of the plant. They are placed in the trench so as to form a continuous line, and the earth, with some manure, is then filled in. In about six months small plants begin to show above the ground, but bear no roses until the second year, and these are of no great value: The third year's crop is fit for the production of the essence, and by the fifth year the plant is at its best. It remains in this condition for several years, but after about

fourteen or fifteen years the quality of the roses has so deteriorated and the bushes grown so thick that re-planting is necessary. By this time they may be six feet high. The rose tree is a very delicate plant, and requires constant care.

As the crop of flowers advances toward harvest time the cultivator has to make a kind of rough estimate of the quantity of buds and flowers that he must gather each day. This is limited by the amount of labor he can command to pick the young full-blown roses before sunrise, and by the quantity he can distill at one time. For the sun soon dispels the scent, and the flowers must go immediately into the still. Thus supposing that he sees or judges that it will take ten days for the whole crop to come to perfection, he must on the first morning gather a tenth of his crop, and proceed to distill that quantity, and this will explain why a sudden burst of heat forcing on the whole crop is so disadvantageous. It also appears that any great heat during the time of distillation causes the quality of the essence to deteriorate. The distillation is carried on in the most primitive manner, and yet seems to answer the purpose as effectually as would any more complicated or scientific method. The still itself in form resembles a huge copper bottle, with a neck consisting of a small chamber. The height of this still is about five feet. From the top a pipe passes into the receiver, through which the distilled water passes. Into this still is placed a quantity of roses with ten times as much water, and the distillation is carried on until the amount of liquid in the receiver equals in weight the amount of roses in the still. The roses are then thrown out and a fresh quantity put in, and the process is repeated until all the water

is evaporated, when a fresh operation begins. The liquid thus obtained is rose water, which is again subjected to distillation, when the real essence is produced in the form of a pale yellow oil. The quantity of essence that a given number of roses will produce is very uncertain, but a rough average may be taken that to produce one pound weight of the essence it requires the astonishing weight of twenty-eight cwt.

From this may be gathered some idea of the enormous amount of land occupied and the labor bestowed on the cultivation of roses in this district alone, which annually produces upward of 1,800 pounds to 2,000 pounds weight of the essence. There are no large farmers of roses. The rural population have the manufacture entirely in their own hands, and every man that has a small field of roses has also his distilling apparatus. Very often among the poor Bulgarians this constitutes their entire capital, with a small field of maize, a few plum trees and a few vines.—*Letter from Shipka Pass to the London Times.*

ODDITIES OF A JAPANESE GARDEN.

Japanese are fond of fanciful methods of adding to the curious interest of their homes and gardens. The quaint landscapes which adorn almost every suburban villa, of however limited dimensions, are familiar to everybody. One of the most eccentric efforts at embellishment we have seen is connected with the country house of a wealthy citizen of Yokohama. It is situated in Totsuka, on the To Kai Do, and from the road presents no very exceptional appearance, but as soon as the visitor passes the archway of the building to the space at the rear, he finds himself in view of as remarkable a specimen of

decoration as can be anywhere witnessed in so limited a space. A steep hill rises abruptly from the mansion, which is threaded by intricate paths, and profusely covered with every variety of adornment that imagination could conceive or industry gather together. Stone images, strangely carved rocks, twisted roots of trees, dainty works of bronze and porcelain are crowded in "a mighty maze, but not without a plan." Flowers and shrubbery are not entirely displaced, and thick clusters of foliage surround a picturesque arbor at the summit of the declivity. But the most remarkable feature of the place, and the one upon which most care and cost seems to have been lavished, is a deep cavern or series of subterranean passages cut into the hill, through which those who obtain admission may walk for some hundreds of yards. These galleries are enlivened with lines of carving in bas-relief, representing flowers, fruits, family crests, and a perfect menagerie of real and mythical animals. The walls and ceiling form an almost unbroken panorama. A little stream runs by one of the foot paths, and in it crawls a mammoth tortoise, accompanied by its young. The figures have been cut with very little difficulty from the soft clay, and it is expected they will harden with time. Many of them are gaudily colored, reflecting a kaleidoscopic radiation from the glare of the torches. The enterprising owner has evidently determined to leave none of the possible advantages of his property unimproved. His house is one of the finest in the neighborhood, every inch of his hillside garden shows the mark of his attention, and he has even penetrated the bowels of the earth to secure novelty and ingenious variety in the development of his estate.—*Tokio (Japan) Times.*

DWARF ORANGE TREES.

We notice in the seed and flower store of B. F. Wellington, 425 Washington Street, a number of handsome, well-conditioned, and thrifty Dwarf Orange trees just imported by him from Japan. There are three varieties, viz.: the large Mandarin (*Citris nobilis*), the Fingered (*C. angulata*), and the small Oval (*C. japonica*). These beautiful specimens of the Orange family are all loaded down with clusters of fine fruit, and the roots are safely packed in soil, and well protected by bagging. The Mandarin is an excellent species for cultivation; it has a thin rind, and is of superior flavor. The Fingered is oblong in shape, and is very curious, having projections at the end somewhat similar to fingers. It is of fair quality for eating. The small Oval is pretty, and somewhat resembles the Cherry Tomato, except that it is rather oblong in form.

THE FLESH OF FRUITS.—It is generally supposed that the flesh of the fruit provides the first food for the germinating plants of its seeds. Such, however, remarks the *Journal of Chemistry*, is not the case, for heré, as in other cases, the first nourishment is drawn from the seed alone. The flesh of the fruit bears no relation to the embryo; it is a kind of outcast substance or excretion of the plant. In most of our cultivated fruit trees, too, the great mass of this flesh is the result of cultivation. Thus, wild Cherries possess so little flesh that they do not repay the trouble of plucking. In the mountains of Pontus Grapes are found so small that they are not worth eating; and the wild Apricot, and often, likewise, the wild Peach, possess no flesh at all, the former, indeed, being like a leathery two-valved

capsule. The flesh of the fruit of most of our cultivated fruit trees is analogous to the enlarged roots of the Turnip and Beet, and similar plants, and is simply the product of cultivation, which is much sooner lost again under neglected circumstances than it was originally artificially produced. One of the most able French botanists, Professor Lecoq, of Clermont Ferrand, instituted numerous experiments with various wild plants to induce them to form fleshy roots, and he was almost invariably successful. Just as it is the task of the agriculturist to increase the volume of his roots, so it should be the aim of the fruit gardener to increase the flesh of the pome, stone, berry fruits, and the substances stowed up in the cotyledons of nut fruit.

OLD-FASHIONED FLOWERS.—The *German-town Telegraph* says: "Most of our gardeners, who always have a passion for new things, ignore more and more the fine old flowers with which our yards and gardens were formerly decorated, and whose fragrance was enjoyed even by pedestrians out on the street or road. Where are the Sweet Williams, the Verbenas, the Holyhocks, the Petunias, the Canterbury Bells, the Iris, the Phloxes, Chrysanthemums, and a half-dozen others. They are supplanted by new things not nearly so beautiful or so fragrant. We shall make an effort another year to reintroduce such of these as we do not now possess, and will endeavor hereafter to keep them up." We notice during the past two years a growing tendency to return to some of the old-fashioned favorites, and we are glad to see it. In many of the newer plants we admit that a greater beauty of bloom has been secured, but it seems usually to be at the expense of hardiness and constancy

of bloom. They bloom for but a short time, and then, if not beautified by their foliage, are of little value in ornamenting a lawn or yard. This seems to be especially true of Roses, which, bursting a few buds, seem to have exhausted themselves, and do not make nearly so fine a show as some of the old constant bloomers. If systematically pinched back the common Morning Glory, Nasturtium, or even the Coral Honeysuckle will make ornamental basket plants.

A VALUED correspondent writes us that he protects his Grapes from the attacks of birds, by stretching a white cotton cord over each row of Grapes. Since he has adopted the plan he has not lost a Grape by the birds.

ORANGE CULTURE.—Here is an extract that may interest some of our Orange planters in the South. It is taken from Leake's "Travels in Northern Greece," vol. 4, page 233: "The following method of planting Orange slips is generally practiced at Arta. The bark having been taken off round the place where the separation is to be made, a strip of sheepskin leather is tied around the wood. A quantity of earth, contained in two half pots, is then placed at the ligature and bound so as to be supported by the main body of the tree in order that the branch may not be injured by the weight. Roots soon strike into the earth from the branch, after which it may be cut off and placed in the ground. In this manner it may be planted with fruit upon it, and will bear a good crop in one, two, or three years, according to its strength, instead of ten, which the seedling requires in coming to perfection. It is found that a tree, however good, improves in its fruit by being grafted every three or four years; the graft is taken from a

choice tree, and sometimes from the same tree." Various adaptations of the same principle have been in use for the past hundred years. The closing statement is opposed to all well known rules.—*Agricultural Editor N. Y. Tribune.*

CARE OF HOUSE PLANTS.—A handful of soot placed in a bag and stirred in a pail of water, is an excellent mixture for stimulating strong feeding house plants, as Azaleas, Carnations, Chrysanthemums, Fuchsias, Pelargoniums, Roses, etc., giving them vigor, and assisting in destroying parasites. This may be alternated by an occasional application of a weak mixture of the drippings of barnyard manure. So, also, an occasional application of ammonia, a teaspoonful to a pail of water, will be beneficial. This with plenty of sun, as the autumn progresses, and exposure to the air in mild weather, will place them in good condition for the winter season. The chief difficulty to be guarded against, as we have before stated, is to secure as moist an atmosphere as possible—sometimes a difficult matter in winter. For this reason, the plants with glossy or hard leaves, in contradistinction to the soft or hairy-leaved plants, are preferable for house culture, unless a comparatively moist atmosphere can be given. Much, however, may be done by occasionally inverting the pots containing the plants, over the hand, and washing in either clear water or weak suds. In case of the latter, they should be subsequently rinsed in pure water.

THE Central Pacific Railroad Company planted 300,000 trees, chiefly Eucalyptus, along the line of their road last season, and they have ordered over 700,000 more, which will be set out the coming season.

BANANA. — During the present week we saw a Banana plant, of the variety known as the Chinese Dwarf, growing upon the place of Mr. C. E. White, on Hill Street, which beats anything in the Banana line we ever heard of. This plant has one bunch containing about 170 nicely formed and rapidly developing Bananas. This fruit retails in our markets at five cents each, which would make the value of this one bunch to be the handsome sum of \$8.50. All of this variety upon his place promise the same prolific yield.—*Los Angeles Mirror*.

NATIVE WALNUT TREES.—We visited the ranch of Dr. Ellis, three miles below Centreville, a short time since, and were there shown several large, handsome trees of the California Walnut. The tree resembles the Black Walnut of the Western States, and the nut has a similar husk and kernel, but the shell is thinner and smoother on the surface. The tree grows thriftily, makes a beautiful shade, and bears a choice nut. They grow around the lake, and in some localities in the foot-hills. In Dr. Ellis' front yard is a Blue Gum tree of four years' growth, which measures twelve inches in diameter. The growth of trees on the moist lands along King's River, and on the uplands when irrigated, is almost marvelous, and should encourage every one owning land to plant trees whenever possible.—*Republican*.

EQUAL TO THE FOOTHILLS. — Stories, without exaggeration, have been told about the growth of fruit in the foot-hills, where as many as two crops of certain varieties are sometimes gathered in one season; but no one supposed that a county so high up in the mountains as Trinity would put in a claim of

rivalry in this connection. Yet we are told by the *Weaverville Journal* that it has in its possession a branch from an Apple tree of the "Early June" variety, containing fruit of the second crop nearly ripe, the first crop having been gathered in June. The branch was from the garden of Mr. Ellis Flowers, at Cañon City. Mr. Flowers informs the *Journal* that he has Pear trees bearing the second crop, and that in Mr. J. A. Burger's garden may be seen the second crop of Blackberries; also that the Dogwood trees are in full bloom at the present time, and that it is a rare occurrence for them to bloom a second time. In Weaverville Mr. James Benton has a Pear tree in full bloom; F. W. Young has a second crop of Pears of good size, and Grapes nearly ripened. Mr. W. L. Hudspeth has raised an excellent crop of Grapes of the Flaming Tokay variety, the first crop having been killed by frost late in April. Wonderfully productive, indeed, are the California soils, and genial the California climate.

INDIGENOUS FILBERTS, ETC., IN HUMBOLDT COUNTY. — There has been one shipment of nuts from Humboldt County during the past two years; with what amount of profit we will not undertake to say. There is a species of Filbert which grows spontaneously inland, and some Hazel nuts close along the coast. The Filberts can be had in large quantities. They are gathered to some extent and sold in Eureka in quantities to fully demonstrate the practicability of the enterprise. The climate is adapted to Soft-shelled Almonds, and the experiment of growing them is now to be tried on Eel River. Peanuts grow to good advantage along Eel River, also on the heavy sandy lands. The richness of the soil makes

them wonderfully productive. We look forward to the time when it will be numbered among our paying industries. —*Humboldt Times*.

BROWALIA ELATA.—This is one of the prettiest of all blue-flowered plants for "cutting" through winter. It is an annual, and flowers soon after sowing. It does not like a high temperature; one about 50° or 60° suits it best. It likes a rather damp soil, but yet one in which the water passes rapidly away.

WHY FLOWERS HAVE DIFFERENT HOURS FOR BLOOMING.—Sir John Lubbock alludes to the fact that at certain particular hours flowers close. This habit of going to sleep is very curious, and different flowers keep different hours. The reason for it, however, is obvious, for flowers which are fertilized by moths and other night-flying insects, would derive no advantage by being open by day, and on the other hand, those fertilized by bees would gain nothing by being open at night. The closing of flowers, he believes, has reference to the habits of insects, and it must be confessed that the opening and closing of flowers is gradual, and that the hours vary greatly according to circumstances.

A CURIOUS AUSTRALIAN TREE.—The "Bottle tree" is an Australian tree of the family *Sterculiaceæ*. It has the calyx five-cleft, usually colored; no petals; column of stamens with fifteen or rarely ten anthers; stigma peltate, carpels five distinct, with two or more ovules, narrow digitate leaves; paniculate axillary inflorescence; flowers unisexual or polygamous, the female flowers expanding first. The tree has a greatly expanded trunk which is swollen to a disproportionate size. Where the ground is rocky this expansion is great-

est just below the branches, but in favorable soils the foot of the tree is largest, forming a uniform cylindrical column from whose summits the branches issue as from the neck of a bottle. The family of which the Bottle tree is a member, embraces many trees valuable for their wood and for their nutritious seeds, the most famous of which is *Cacao*, from which chocolate is derived.

As Pines and Firs have been discovered to have a greater effect than other trees in influencing the rainfall and increasing the general humidity of the atmosphere, M. Fantral, of the French Academy, has proposed the planting of these trees in Algeria. The same fact may possibly be utilized with advantage on some of the Western lands in this country.

A REMARKABLE instance of the rapidity of the growth of the *Eucalyptus* has recently been announced from Jamaica, where, in the elevated portion of the island, there are said to be trees sixty feet high, with trunks a foot in diameter near the ground, that were raised from seed introduced into the island only six years ago.

JAPAN CREEPING EUONYMUS (*Euonymus radicans*).—The *Gardener's Monthly* recommends this newly introduced plant as a substitute for the English Ivy where the winters of the north are too severe for the latter. The leaves are evergreen, and the stems throw out roots and adhere to walls. Or it may be treated as a bush, or used for the edging of flower beds; its various uses increasing its value.

SEEDING OF ARAUCARIA EXCELSA.—By artificial application of pollen, an *Araucaria excelsa* at Hauva, in Algiers, has been made to produce seeds—a rare thing in the old world.

CITY VIOLETS.

BY VAN DYKE BROWN.

In the heart of the turbulent city,
Through the din, and the dust, and the heat,
I come to the flower girl, selling
Her wares on the curb of the street.

Red roses and violet-leaved pansies,
With the modest blue violets—
A flower as fresh and as fragrant
As the memories which it begets.

Take the roses that blush in their beauty,
Take the pansies of royal hue ;
But leave me the violets dainty,
The violets modest and blue.

For they hint of the breezy country,
Of meadow, and woodland, and field ;
And, like balm to my weary spirit,
Is the perfume which they yield.

Unused to the riotous city,
I fancy they open their eyes
At the din, and the roar, and the racket,
Filled with a strange surprise.

Ah, well, for those days unforgotten,
When I gathered such flowers as these ;
When I wandered through woodland meadow,
A friend of the birds and the trees.

Ah, well, for the hopes I have buried,
For the longings and vain regrets ;
For the buds of promise withered,
Since I gathered violets.

I knew them in days that have left me,
In days that were trustful and true ;
When life, like the violet dainty,
Was colored with heaven's own blue.

So here, in the heart of the city,
Where want with affluence blends,
These modest flowers greet me
Like well-remembered friends.

Your pansies are gaudily splendid,
But I like not their purple and gold ;
Your roses, red-hearted, remind me
Of beauties too brazenly bold.

But all that is pure and modest
Is found in the violet sweet ;
Like a maiden whose lips are virgin,
Dainty, demure, and complete.

Then give me the violets modest,
The violets modest and true ;
For the past is embalmed in their fragrance,
And heaven beams out of their blue.
—From the *Clipper*.

THE Mendocino *Beacon* prints the following : J. D. Murray has on exhibition at his store quite a curiosity in the way of Potatoes. There were eleven in all, the weight of which was 32½ pounds. The largest weighed 3 pounds and 9 ounces. The average weight of this lot was nearly three pounds each. They are sound and perfect. When spread out they measured 9 feet 6 inches in length. One Potato has been sent East.

THE CATALPA AS A TIMBER TREE.—In regard to the Catalpa, says the Germantown *Telegraph*, there seems to be no doubt that, while it is one of the most rapid growing trees we have, it is also one of the most durable of woods. We have seen figures which we have no reason to doubt are correct ; and the writer has recently seen a post taken up after eight years of service that was as good as the first day it was set. Eight years, of course, is no very great period for a post to last, but from all appearance there is no reason why it should not endure at least three times what it has stood ; and a quarter of a century is tolerably good for a fence post. The trouble with the Catalpa is that the terminal bud does not ripen when young, and so gets killed in our winter. The bud below, pushing, makes a crooked stem, and in this way the trunk of the mature tree is not as straight as is desirable in a satisfactory timber tree. To remedy this the trees are suffered to grow as they will for a couple of years, until the roots get strong. They are then cut down to the ground, when a smooth straight shoot

goes up ten feet high in one season, generally maturing its bud, and laying the foundation of a pretty trunk. Such a stem is generally two inches thick, and as in any fair ground it will increase at the rate of an inch a year, we have in three or four years after a trunk five or six inches thick—quite thick enough for many useful pieces of work upon a farm. But these six-inch stems, cut to the ground, then throw up shoots of amazing strength, making a new and beautiful timber tree with surprising rapidity.

THERE is a magnificent Orange tree in the orangery of the palace of Versailles, which is now over four hundred and fifty years old. It is known by the name of the Grand Connetable, or Grand Bourbon, and it grew from some pips of a bitter Orange planted in a pot at the commencement of the fifteenth century by Eleanor of Castile, wife of Charles III., King of Navarre. The young plants which sprung from the seed were kept in the same tub at Pampeluna until 1849. In 1864 they were removed to Versailles.

PERENNIAL PLANTS.—The *Rural Gentleman* has an article on perennial, herbaceous plants, for flowering purposes, which takes the ground that of all plants in cultivation they are the least trouble to take care of, as they die down in the fall, some within the earth, and others to its surface, and are rapidly increased by dividing the roots and transplanting in spring. Besides, some will bloom for a long while before bed-ding. They sometimes bloom the first season of putting out—always in the second season. Most of them bloom till the frost cuts them down, which makes them more desirable, and they should be more generally cultivated; for where a fine collection is grown,

and with the annuals and others that are put out for summer flowering, they make a fine display. Great improvements have been made of late years to the perennial list of plants, by the hybridizing and raising of the new varieties, which are growing in great demand. Being no necessity to take them up through the winter, but leaving them in the open ground without protection, then from spring till fall having some always in bloom, and lasting for years with so little trouble, must bring them into the notice of lovers of flowers, especially if they have room to plant them. It would be impossible to give our readers a list of the most desirable perennial flowering plants, owing to the fact that certain kinds do well in some localities, and not so well in others. Experience will be the best instructor as to the kinds to choose.

METEOROLOGICAL RECORD,

FOR THE MONTH ENDING NOVEMBER 30th, 1877.

(Prepared for THE HORTICULTURIST by THOS. TENNENT, Mathematical Instrument and Chronometer-maker, No. 18 Market Street.)

BAROMETER.

Mean height at 9 A. M.	30.20 in.
do 12 M.	30.20
do 3 P. M.	30.09
do 6 P. M.	30.09

Highest point on the 24th at 12 M. 30.35

Lowest point on the 11th at 6 P. M. 29.93

THERMOMETER.

(With north exposure and free from reflected heat.)

Mean height at 9 A. M.	59°
do 12 M.	63°
do 3 P. M.	63°
do 6 P. M.	58°

Highest point on the 26th at 3 P. M. 69°

Lowest point on the 2d at 6 P. M. 53°

SELF-REGISTERING THERMOMETER.

Mean height during the night.	50°
Highest point at sunrise on the 6th.	55°
Lowest point at sunrise on the 19th.	46°

WINDS.

South-east and south-west on 12 days; north and north-west on 12 days; west on 3 days; east on 3 days.

WEATHER.

Clear on 9 days; cloudy on 9 days; variable on 12 days.

RAIN GAUGE.

	Inches.
2d.....	0.09
4th.....	0.15
5th.....	0.28
10th.....	0.06
11th.....	0.42
15th.....	0.12
16th.....	1.13
22d.....	0.18

Total..... 1.38
Previously reported..... 0.58

Total for the season..... 1.96

